

Motivating Utility Customers to Adopt Multiple Energy-Efficient Measures

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ABSTRACT

Our research reveals that 48% of Americans think their homes are already energy efficient. Yet 63% say they have higher energy bills than in the past. To compound the problem, over 40% of those who've made improvements say they haven't seen the reductions they expected in their energy bills. However, we've learned that those who have completed five or more improvements report their bills *did* go down. Additionally, there are four distinct consumer segments with different motivators and triggers. Yet most utility marketing efforts do not address these issues—they talk to all customers as if the same things motivate them and everyone needs the same improvements.

We believe that by speaking to customers according to their unique drivers and then recommending individualized, prescriptive actions based on their situations, we can engage Americans to do enough to really see a reduction in energy consumption.

That is why our company, created a new program that addresses these issues and leverages consumer segmentation to drive participation in multiple utility programs. It's a web-based platform that uses principles of behavioral science, speaks to customers in a segmented way according to their drivers, and recommends individualized, prescriptive actions based upon their home improvement history and most likely/highest-impact next steps. It allows us to identify the person we're talking with, connect to their values, recommend the right list of five improvements, and keep them motivated with financial, social, and behavioral nudges along the way.

Introduction

We completed our ninth annual Energy Pulse™ national consumer market study in 2013. This online survey of 1,000 Americans tracks numerous energy consumption and conservation behaviors, digging deeply into American consumer attitudes and motivations, identifying continuing trends and emerging issues, and gaining insight into perceptions of and propensities for energy-efficient products and services. This deep consumer data from ongoing polling provides unparalleled insights into consumers' emotional drivers.

Perceptions of Home Energy Efficiency

The foundation of the customer engagement platform is built from the empirical correlation between home energy efficiency and utility bill perceptions and the number of improvements the homeowner has completed.

In our Energy Pulse 2013 study, we saw that almost half of Americans (48%) rate their homes as somewhat to very energy efficient (illustrated in Figure 1 below). This common perception is a root cause of homeowner inaction in regards to energy efficiency and conservation behaviors. If you think your home is already pretty efficient, then energy-efficient home improvement activities get pushed lower down your priority list (Head, Shelton, and Stephens 2013a).

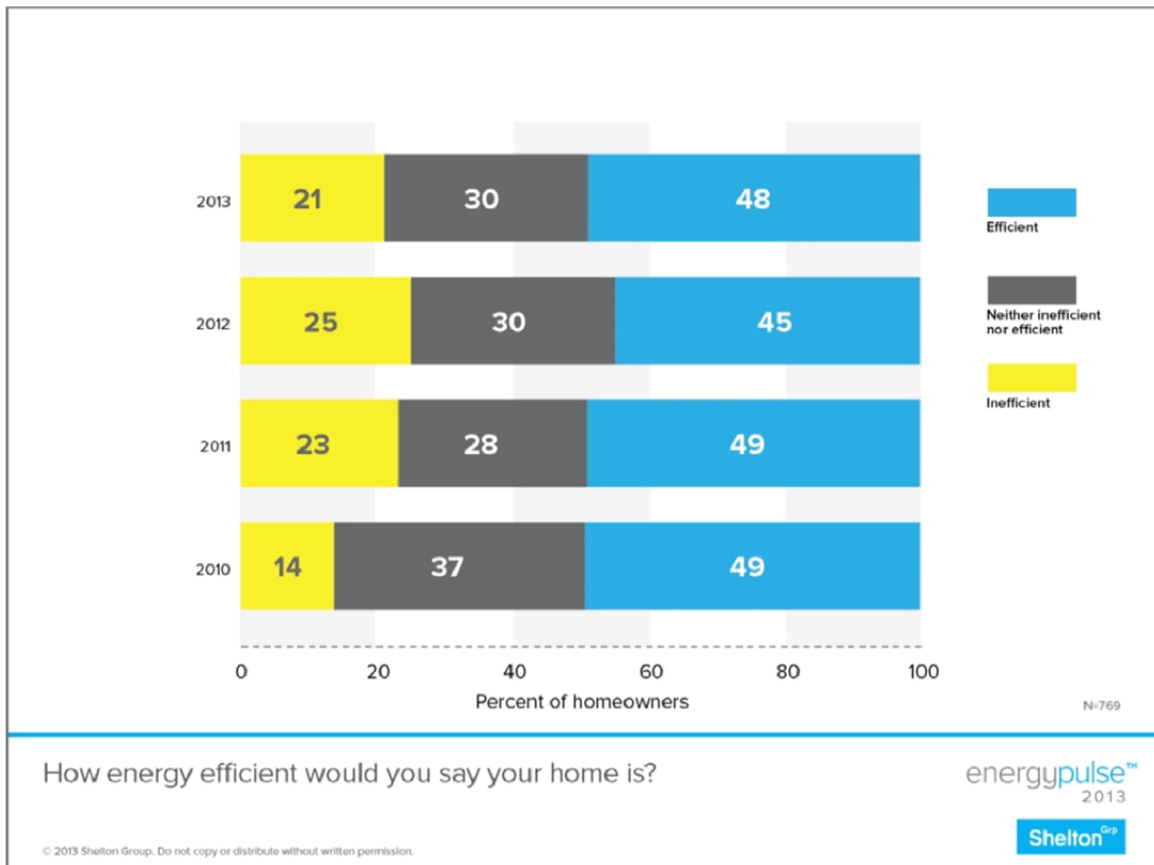


Figure 1. Consumer perceptions of home energy efficiency—trend 2010–2013. *Source:* Head, Shelton, and Stephens 2013a.

Perceptions of Utility Bills

Also in our Energy Pulse 2013 study, homeowners were asked to estimate the change in their utility bills over the past two years. Sixty-three percent said their bills had increased, with most (26%) saying they’d increased 10–30% over the last two years and 9% reporting an increase of 31% or more (Head, Shelton, and Stephens 2013a).

But here’s the kicker: Our Utility Pulse™ 2013 study found that over 40% of people who’d undertaken energy-efficient behaviors/improvements said they hadn’t seen the bill reduction they’d expected. When asked why they thought their bill had not declined, most blamed their utility, saying their rates had gone up (Head, Shelton, and Stephens 2013b). This completely derails motivation and reinforces the sense of helplessness that many consumers feel about their energy consumption and their utilities. And when people try (and fail), they’re very unlikely to do more or try again (Rotter 1966).

We found that the number of energy conservation activities is strongly correlated to bill perceptions—those who've completed *more* energy-efficient improvements and product purchases were significantly more likely to say their bills have gone down (Head, Shelton, and Stephens 2013b).

In addition, home energy efficiency perceptions are highly correlated with number of completed home improvements: Those considering their home to be efficient or very efficient averaged 5.4 improvements, while those rating their home inefficient averaged 3.5 (Head, Shelton, and Stephens 2013b).

These two findings point to the same insight: Energy efficiency is a multi-step (not one-off) process. Most consumers who undertake energy-efficient activities do not do *enough* (and/or undertake the wrong things) to see noticeable results. The number and type of activities matter, and many people stop (and give up, frustrated) before they should.

In general, the “magic number” is five energy-efficient improvements and conservation behaviors. If a homeowner undertakes five or more activities, he is significantly more likely to see a bill reduction and report that his home is energy efficient. *So how do we motivate consumers to stay the course and get to five things?*

Motivating Utility Customers

Most efficiency programs treat every individual as if they care about and are motivated by the same things. Not only is this untrue, but different segments of the population are actually demotivated by the same things that motivate others. We've identified four consumer segments that have remained consistent for the past eight years, both in terms of their size and psychodemographic characteristics (Head, Shelton, and Stephens 2013a). These segments, identified by past behaviors, environmental attitudes and demographic characteristics, have distinctly different product purchase propensities and behavioral drivers.



Over the years, we have tested a plethora of personality traits, psychological drivers, and worldview characteristics in order to build a robust profile for each segment. We know the messaging that works for each and can predict their most likely product purchase and behavior adoption patterns. For example, we know that Cautious Conservatives tend to be older, upscale, comfort-oriented, and ROI-driven, while True Believers are well-educated, upscale, and significantly more driven by environmental responsibility. While both groups make great targets for a utility HVAC program, their reasons for participating vary dramatically.

The customer engagement platform is designed to use these proprietary segmentation profiles to communicate with consumers on a highly differentiated and personalized level and tap into their deeper emotional drivers to motivate them to change their behaviors.

This online, customer-facing platform provides individual users with a personalized list of five measures and/or behaviors they can adopt to improve their energy efficiency. The program begins with an initial email to each customer with a link to a short questionnaire about her home and her personal characteristics. Using results from this survey, customers are segmented and a personalized energy savings list of five items is generated using software algorithms that factor in their segment, the measures and behaviors they say they've already adopted, and predictive analytics derived from years of polling data that allow us to reliably anticipate what measures and behaviors each user is most likely to adopt. Below is an example of a personalized list for a Working Class Realist. This is a lower-income segment that struggles to make ends meet, so the recommendations are primarily low-cost measures or no-cost behaviors.

Your personalized Energy Savings Plan
Five steps to a fatter wallet

1 2 3 4 5

Your progress as of **05/6/2014** 0 of 5 things done

- 1** Schedule a heating system tune-up this fall – we'll give you \$50 towards the \$130 average cost. Status: **Up next** (Check when complete)
- 2** Schedule a cooling system tune-up this spring – we'll give you \$50 towards the \$150 average cost. Status: **To do** (Check when complete)
- 3** Schedule an in-home energy analysis – use promo code EA101 and we'll waive the \$25 fee! Status: **To do** (Check when complete)
- 4** Set your water heater temperature to 120°F. Status: **Mark Done**
- 5** Use Window Treatments to Save Energy. Status: **Mark Done**

Most utility energy efficiency programs are built as

stand-

alone, one-off programs being marketed independently by third-party program managers. Little guidance is being given to consumers to help prioritize improvements, and very little customization is occurring. Instead, customers are being contacted multiple times with multiple offers, and/or they're given long lists of recommended energy tips and upgrades. Either approach is ineffective. We know, from our years of study, that homeowners want and need guidance and that inaction is usually rooted in either too little information or too many recommendations. Either way, the end result is paralysis.

A core principle of behavior change is to give people a limited number of clear steps—a prescriptive set of actions to take in order to achieve desired results (Iyengar 2000). Home improvement investment decisions are high engagement/high risk. No one wants to make a mistake by investing in the wrong things that won't produce results. People need to know where to start, and they need a clear road map that optimizes “bang for the buck.” The combination of consumer perceptions and behavior change principles creates a powerful solution for motivating customers to adopt energy efficiency measures and behaviors.

In addition, ongoing engagement is critical. Human beings need reminders and positive reinforcement to keep them on the right path. As we've said, achieving energy efficiency is a multi-step process; therefore, the program is designed to encourage and sustain engagement, with regular email reminders and “atta-girls” for completed activities and encouragements to take the next step.

The table below illustrates the email messages participants in our platform receive when they've completed three of their five things.

Table 1. Ongoing engagement emails

Working Class Realist	True Believer	Cautious Conservative	Concerned Parent
<p>Subject Line: Only two more steps left!</p> <p>Headline: Way to go!</p> <p>Copy: You're over halfway there! Take the next two steps to make sure you're hanging on to as much of your hard-earned money as possible.</p>	<p>Subject Line: Only two more steps to take!</p> <p>Headline: Nice work!</p> <p>Copy: You're over halfway down the path to energy savings...and a more energy-responsible home. Take the next two steps, and you'll truly be able to say you've done your part.</p>	<p>Subject Line: Only two more steps left!</p> <p>Headline: Well done!</p> <p>Copy: You're over halfway towards being the boss of your energy bills! See it all the way through...take the next two steps and make sure you're getting the most bang for your energy buck.</p>	<p>Subject Line: Only two more to-do's!</p> <p>Headline: You rule!</p> <p>Copy: You're over halfway to being the best household budget manager ever! Take the next two steps to minimize your utility bills and maximize your family's comfort.</p>

Source: Fiveworx.

Finally, additional behavior change principles are utilized in the platform. For example, Novemsky and Kahneman (2005) found that the fear of monetary loss can be more motivating than offers of monetary gain. So loss aversion is utilized to heighten the sense of urgency for action and encourage multiple behaviors. Limited-time offers and a multi-measure rebate

structure that provides a higher rate of reward for two or three activities (if completed by a deadline) are used to speed participation.

Your personalized Energy Savings Plan

Five steps to a smaller footprint

our progress as of **11/13/2013** 0 of 5 things done

- 1 Replace incandescent bulbs with LEDs and CFLs – discounted by Consumers Energy. Status: **Up next** Check when complete
- 2 Schedule a heating system tune-up this fall – we'll give you \$50 towards the \$130 average cost. Status: **To do** Check when complete
- 3 Let Consumers Energy recycle your old refrigerator – and get a \$50 rebate. Status: **To do** Check when complete
- 4 Install a super high-efficiency water heater and get a rebate from Consumers Energy. Status: **To do** Check when complete
- 5 Install a tankless hot water system and get a rebate from Consumers Energy. Status: **To do** Check when complete

Take two steps and earn an extra \$75!

Do the right thing for the planet and your wallet!

- Complete two qualifying Improvements
- Earn \$75 in cash on top of all your rebates

\$75 Must be completed by : Jan 31, '14

Cross the finish line and get another \$350!

Doing the right thing never felt so good!

- Complete a total of five qualifying Improvements
- Earn another \$350 in cash plus rebates, Ka-ching!

\$350 Must be completed by : Sep 15, '14

Pilot Program—Initial Results

Beginning in late November 2013, the customer engagement platform was implemented in two parallel pilots with a large Midwestern utility company. Both pilots are designed to drive participation in existing rebate programs, for which savings are calculated. In this sense, both pilots may be viewed as cross-program marketing initiatives. One pilot was designed to measure the impact of multi-measure incentives on program participation, while the other was designed to measure the impact of self-reported behavior change on consumption. The activities of both pilot groups will be compared to a control group that was not solicited for the program.

Specifically, the first pilot, dubbed the multi-measure pilot, features multi-measure financial incentives on top of existing rebates to motivate customers to complete their first two, then five measures. The two-measure incentive offers an additional \$75 in cash, while the five-

measure incentive offers an additional \$350 in cash. Each multi-measure incentive includes an expiration date to create a sense of urgency. We are attempting to answer two key questions with this pilot:

- Does the platform’s approach actually motivate customers to complete multiple measures? Results will be compared to the number of measures and multiple measures completed by the control group over the same period of time.
- Does the presence of multi-measure incentives increase the likelihood that customers will complete multiple measures? Since the measures in each pilot are the same, the numbers of measures and multi-measures reported in the multi-measure pilot will be compared to the same metrics in the behavior change pilot.

The second pilot—the behavior change pilot—does not include the multi-measure incentives, and instead features a series of behavior messages and reminders. Users are asked to self-report when they have adopted one of 10 energy-saving behaviors, and then encouraged to make these behaviors habitual through a series of reminders. With this pilot, we are attempting to answer one key question:

- Does engagement through self-reported behavior change lead to lower consumption and, therefore, energy savings that can be quantified and reported as part of a utility’s energy efficiency program results? The consumption of pilot participants will be measured against their year-over-year consumption (controlling for weather), and compared to that of the control group.

Participant Pool

Prior to the launch of the pilots, we created a potential participant pool of 100,000 customers using customer records with valid email addresses, but excluding participants in other pilot programs and energy-use outliers (e.g., second homes). We projected an aggressive conversion rate of 4%, meaning we would need to use all 100,000 customer records to achieve our goal of 4,000 participants. We actually used only about 67,500 to recruit 4,400 participants, achieving a 6.91% conversion rate and surpassing our participation goal by 10%.

Control Group

From the 32,500 customers in our potential participant pool who never received a marketing message from us, we created a control group whose profile is very similar to each pilot group in terms of average consumption and Energy Segmentation Profiles.

Campaign Performance

As part of these pilots, an email-only drip marketing campaign was designed and implemented; half of prospective participants were sent a multi-measure message and the other half received a behavior change message. The campaign featured three messages that were distributed on successive Tuesday mornings. The subject lines for each message were A/B tested with a small subset of customers (500 for each message) prior to full distribution, with the winning subject line (as measured by open rate) used for all remaining customers.

Several industry-standard performance metrics were used to track the marketing campaign. These included:

- Deliveries (the aggregate number of messages successfully delivered to customers)
- Opens (the aggregate number of times an email message was opened by customers)
- Open rate (the number of opens as a percentage of deliveries)
- Clicks (the aggregate number of times people clicked on a link in an email message)
- Click-through rate (the number of clicks as a percentage of deliveries)
- Conversions (the number of enrolled participants)
- Conversion rate (the number of enrolled participants as a percentage of unique deliveries)

At this time, the pilots are in their fourth full month of operation, but early results are encouraging. The preliminary metrics (see Figure 2) indicate that the combined performance for both marketing campaigns has exceeded industry standards. Open rates have averaged over 39%, well above the industry average¹ of 15%, with the multi-measure campaign slightly outperforming that of the behavior change campaign (41.1% vs. 37.6%). In addition, click-through rates averaged 4.9%, more than double industry standards of 2.1%.

	Email #1	Email #2	Email #3	Combined	
Recipients	67,494	58,064	43,154	168,712	
Bounces	5,615	690	506	6,811	
Deliveries	61,879	57,374	42,648	161,901	
Opens	23,996	25,776	13,927	63,699	INDUSTRY AVERAGES
Open Rate	38.78%	44.93%	32.66%	39.34%	15%
Clicks	3,499	2,814	1,623	7,936	
CTR	5.65%	4.90%	3.81%	4.90%	2.1%

Figure 2. Overall (both pilots) email campaign performance as of April 30, 2014. *Source:* Fiveworx.

¹ Industry averages provided by Cadmus Group, 2013.

Conversion Rates

Conversion rates are also outperforming industry norms. For the purpose of our pilots, conversion rate is defined as the number of customers who enroll in the program as a percentage of the number of customers to whom we successfully delivered at least one marketing email message. To become an enrolled participant, customers were required to complete a brief survey and create an online account.

For most digital initiatives, conversion rates of 1–2% are considered solid performance. The conversion rate for our pilot was 6.91%, with the multi-measure pilot again out-performing the behavior change pilot by a small margin (3%).

Customer Satisfaction Ratings

We know from our Energy Pulse study that utility customer satisfaction is strongly correlated with awareness of and participation in energy efficiency rebate programs. We've hypothesized that the customer engagement platform will not only increase program participation, but will also improve customer satisfaction.

In the initial platform enrollment survey (see Figure 3), 64% of participants reported that they were satisfied or very satisfied, 29% were neutral, and only 7% were dissatisfied or very dissatisfied. We will be asking participants to rate their satisfaction at about the six-month mark in the pilot and again at about the 12-month mark near the pilot's conclusion, and we will compare the results from all three surveys in order to determine the impact of program participation on customer satisfaction. We'll also compare average satisfaction scores for participants to the utility's residential customers overall.

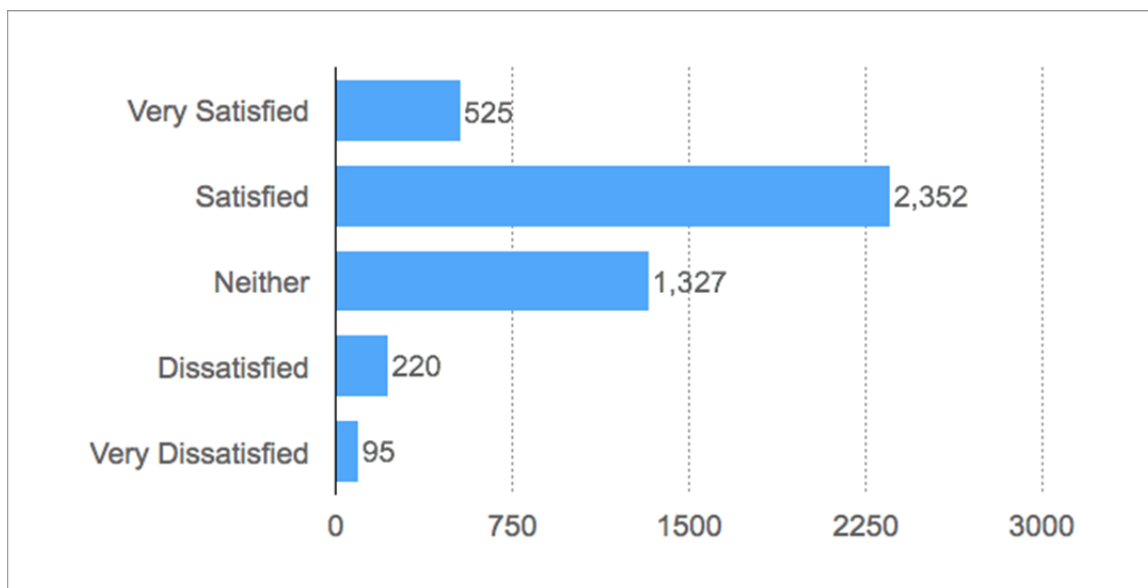


Figure 3. Customer satisfaction as of March 31, 2014. *Source:* Fiveworx.

Energy-Efficient Home Activity Completion Rates

Most importantly, we are seeing an increase in the number of customers reporting that they have done one or more energy-efficient activities. While validation of results has not yet been completed, initial results (see Figure 4 below) look promising.

- By early May, there were 4,510 active users in the two pilots.
- 388 users had self-reported at least one measure as being complete.
- 235 users in the multi-measure pilot self-reported measures as being complete, compared to 153 in the behavior change pilot.
- Based on self-reported measure completion, 170 people qualified for the two-measure bundle by the January 31, 2014, deadline (verification is ongoing).
- A total of 779 measures have been reported by users as being complete, for an average of just over two measures self-reported per user.

Three users have reported completing all five measures, and others are clearly progressing toward completing all five.

Activity	MM	BC	Total
Schedule a heating system tune-up this fall – we'll give you \$50 towards the \$130 average cost.	86	68	154
Install roof (attic) insulation and get a rebate from Consumers Energy.	84	46	130
Schedule an in-home energy analysis – use promo code EA101 and we'll waive the \$25 fee!	74	41	115
Replace incandescent bulbs with LEDs and CFLs – discounted by Consumers Energy.	45	29	74
If you have a crawl space, install insulation in walls and get a rebate from Consumers Energy.	39	7	46
Let Consumers Energy recycle your old refrigerator – and get a \$50 rebate.	28	17	45
Schedule a cooling system tune-up this spring – we'll give you \$50 towards the \$150 average cost.	0	42	42
Purchase a furnace with an ECM and get a rebate from Consumers Energy.	29	11	40
Install a programmable thermostat– and get \$10 to pay for it (available in 2014)	11	27	38
Install a super high-efficiency water heater and get a rebate from Consumers Energy.	11	11	22
Install water-efficient showerheads.	18	0	18
If you have a basement, install basement wall insulation and get a rebate from Consumers Energy.	6	4	10
Inspect your ductwork.	10	0	10
Seal air leaks in your home with caulk and weather stripping.	7	1	8
Be smart about ceiling fans.	3	2	5
If you have a traditional 30+ gallon water heater, wrap it in an insulating blanket.	4	1	5
If you have a basement, install rim joist insulation and get a rebate from Consumers Energy.	2	2	4
Install sun-blocking window tint or film.	3	1	4
Replace your windows with new high-efficiency models – and get a \$15 rebate on every one.	2	2	4
Install a tankless hot water system and get a rebate from Consumers Energy.	1	1	2
Buy an ENERGY STAR® qualified refrigerator	1	0	1
Install above-grade wall insulation and get a rebate from Consumers Energy.	1	0	1
Insulate your hot water pipes.	1	0	1

MM = Multi-measure Pilot | BC = Behavior Change Pilot

Figure 4. Completed activities as of March 31, 2014. *Source:* Fivewor.

Since each customer receives a personalized list based on their answers to our survey and our predictive analytics algorithm, we look to completion rates (the number of times a measure is marked as completed as a percentage of the number of times it was displayed) as a key metric. Generally speaking, after excluding the high and low outliers, completion rates are averaging between 2% and 7.5%. See Figure 5 below for completion rates by segment.

Activity	TB	CC	CP	WR
Schedule a heating system tune-up this fall – we'll give you \$50 towards the \$130 average cost.	3.60%	4.56%	3.41%	3.13%
Install roof (attic) insulation and get a rebate from Consumers Energy.	7.47%	4.92%	4.83%	4.26%
Schedule a cooling system tune-up this spring – we'll give you \$50 towards the \$150 average cost.	2.05%	3.17%	1.35%	1.63%
Schedule an in-home energy analysis – use promo code EA101 and we'll waive the \$25 fee!	3.49%	2.69%	3.13%	2.01%
Replace incandescent bulbs with LEDs and CFLs – discounted by Consumers Energy.	6.72%	4.43%	5.81%	6.76%
Install a programmable thermostat– and get \$10 to pay for it (available in 2014)	1.94%	0.00%	1.06%	4.43%
Let Consumers Energy recycle your old refrigerator – and get a \$50 rebate.	2.77%	5.70%	3.53%	7.29%
Purchase a furnace with an ECM and get a rebate from Consumers Energy.	0.50%	2.02%	1.75%	1.72%
Install a super high-efficiency water heater and get a rebate from Consumers Energy.	0.95%	1.75%	20.00%	0.00%
If you have a crawl space, install insulation in walls and get a rebate from Consumers Energy.	5.36%	2.80%	3.34%	6.07%
If you have a basement, install basement wall insulation and get a rebate from Consumers Energy.	5.56%	5.33%	4.26%	5.56%
Replace your windows with new high-efficiency models – and get a \$15 rebate on every one.	7.14%	0.00%	12.70%	0.00%
If you have a basement, install rim joist insulation and get a rebate from Consumers Energy.	5.56%	3.13%	0.00%	4.76%
Be smart about ceiling fans.	50.00%	0.00%	50.00%	33.33%
Install sun-blocking window tint or film.	0.00%	0.00%	25.00%	25.00%
If you have a traditional 30+ gallon water heater, wrap it in an insulating blanket.	10.00%	0.00%	50.00%	6.25%
Install a tankless hot water system and get a rebate from Consumers Energy.	1.87%	0.00%	0.00%	0.00%
Seal air leaks in your home with caulk and weather stripping.	0.00%	0.00%	100.00%	15.38%

TB = True Believer | CC = Cautious Conservative | CP = Concerned Parent | WR = Working Class Realist

Figure 5. Activity completion rates as of March 31, 2014. *Source:* Fiveworx.

Of course, these numbers will become more meaningful as the pilots progress. They do illustrate, however, that certain measures may appeal more to certain segments of the population. For example, Cautious Conservatives and Working Class Realists appear more than twice as likely to recycle refrigerators and freezers, whereas True Believers and Concerned Parents appear much more likely to replace their windows. We will continue collecting data and will share updates during our presentation at the conference.

Conclusions and Next Steps

While it is too early to draw definitive conclusions, these preliminary results are encouraging. On average, our participants are reporting that they have completed three things prior to coming into the program. Less than halfway through the pilots, users are reporting completion of two more measures on average, suggesting that the program is encouraging participants to reach the goal of five improvements, which should lead to a noticeable difference in their utility bills. While we haven't yet run comparisons with the control group, the program appears to be creating motivation that may in fact drive customers to complete more measures than they might have otherwise. It also appears that the presence of multi-measure incentives does in fact motivate customers to act, as evidenced by the 53% higher completion rate in the multi-measure pilot.

As the pilots move into their second half, we are focusing on several key activities to drive engagement and measure completion, including but not limited to:

- Brief surveys of active participants to assess levels of satisfaction with the program, and interviews with customers who opened or clicked emails but did not engage to identify potential barriers to engagement
- A new round of reminder messages to motivate customers to redeem the rebates for the measures they have self-reported as complete
- An update to the user experience that allows users to measure their progress against potential savings, among other features
- A series of new messaging experiments, each based on a different core principle of behavior change and each featuring A/B testing of different messages

At the conclusion of the pilots, we will be measuring not just engagement metrics such as those reported here, but also the impact of self-reported measure completion and behavior change on actual consumption over the life of the program, over the prior year (controlling for weather), and compared to the control group. Additionally, an independent evaluator will be conducting an evaluation of the pilots. We look forward to presenting more detailed results in future meetings.

References

Head, L., S. Shelton, and B. Stephens. 2013a. “Energy Pulse: Energy Efficiency Revamped—New Messages for a Resistant Audience.” Prepared by Shelton Group.

2013b. “Utility Pulse.” Prepared by Shelton Group.

Iyengar, S., and M. Lepper. 2000. “When Choice is Demotivating: Can One Desire Too Much of a Good Thing?” *Journal of Personality and Social Psychology* 79 (6): 995–1006.

Novemsky, N., and D. Kahneman. 2005. “The Boundaries of Loss Aversion.” *Journal of Marketing Research* 42 (2): 119–128.

Rotter, J. B. 1966. “Generalized expectancies for internal versus external control of reinforcement.” *Psychological Monographs* 80 (1): 1–28.