LARGE FILING SEPARATOR SHEET

CASE NUMBER 14-0456-EL- EEC

FILE DATE   3/26/2014
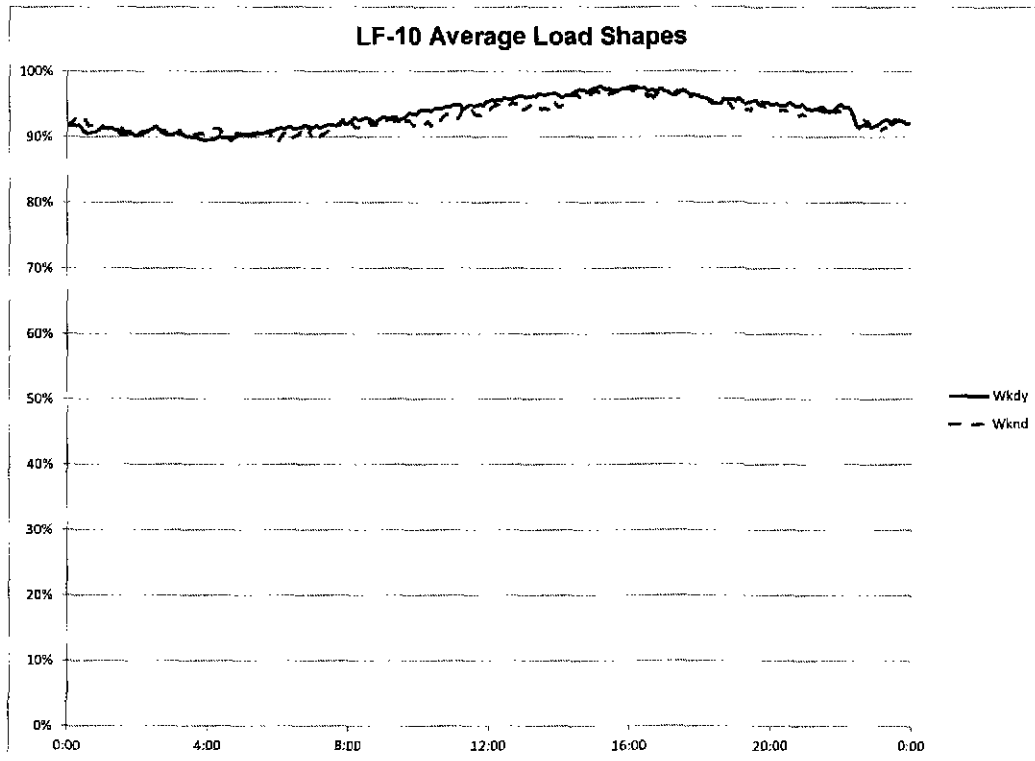
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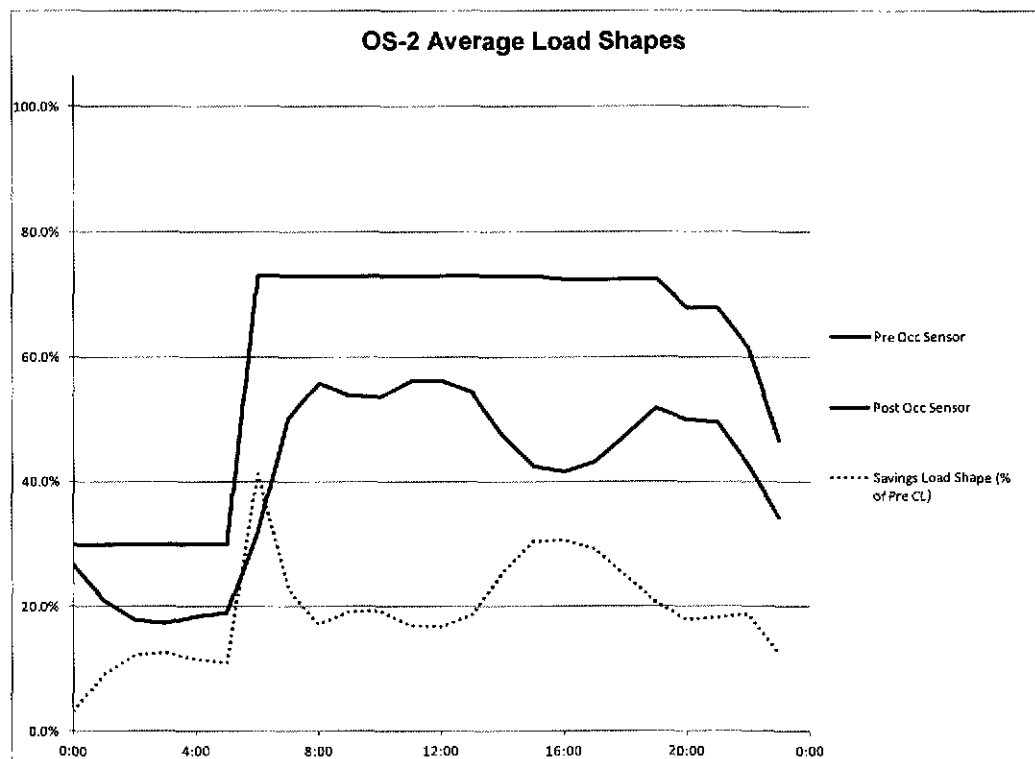NUMBER OF PAGES: 200

DESCRIPTION OF DOCUMENT: Status Report

TecMarket Works

LF-10 Average Load Shapes

TecMarket Works

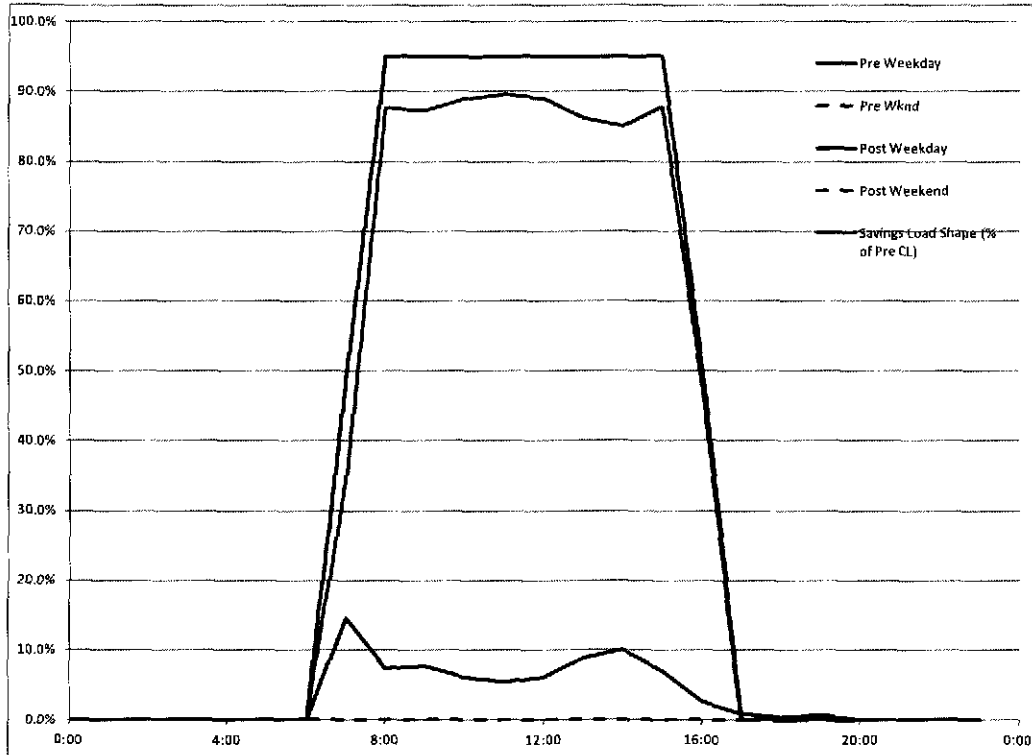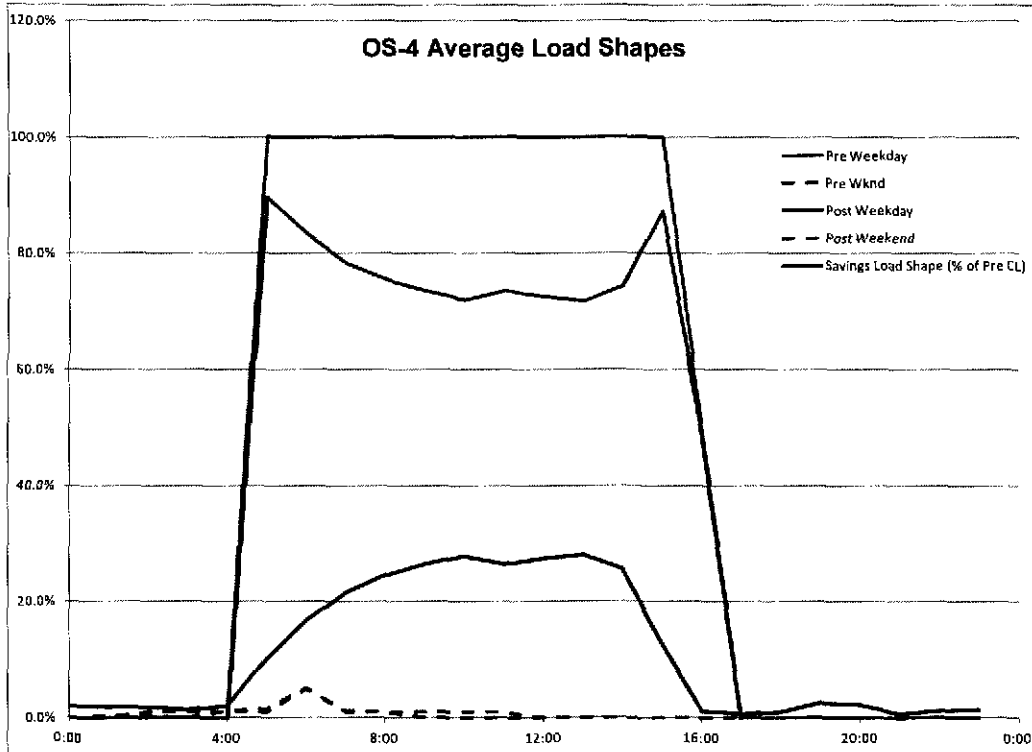## Occupancy Sensor Sites
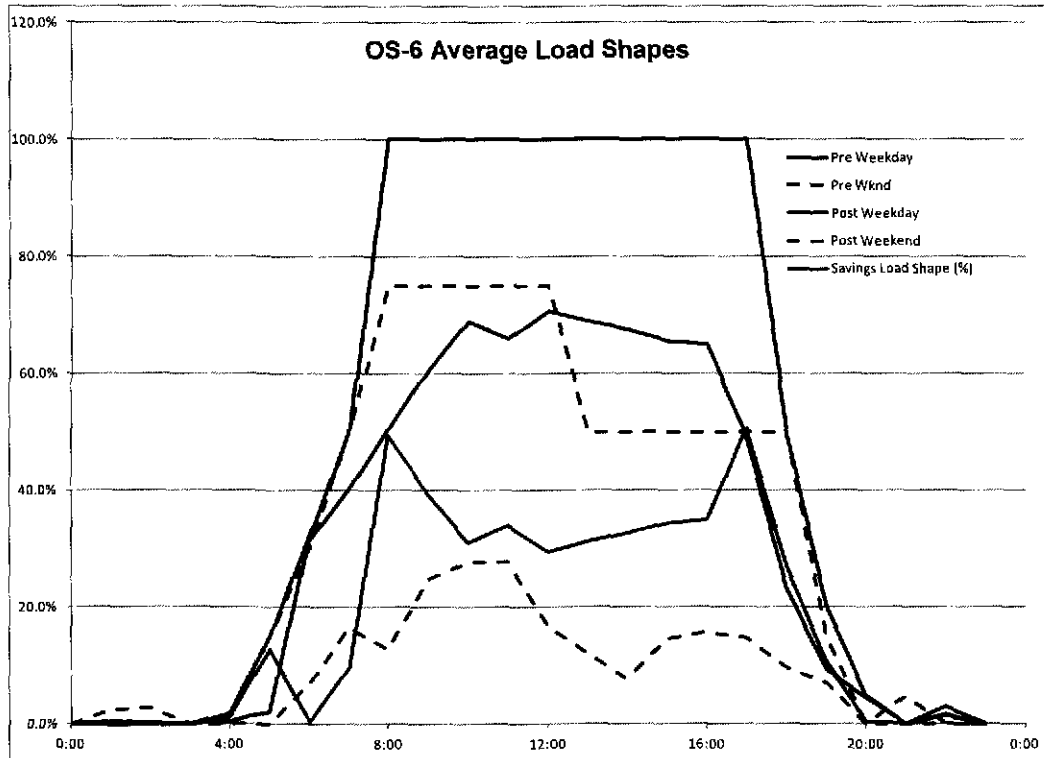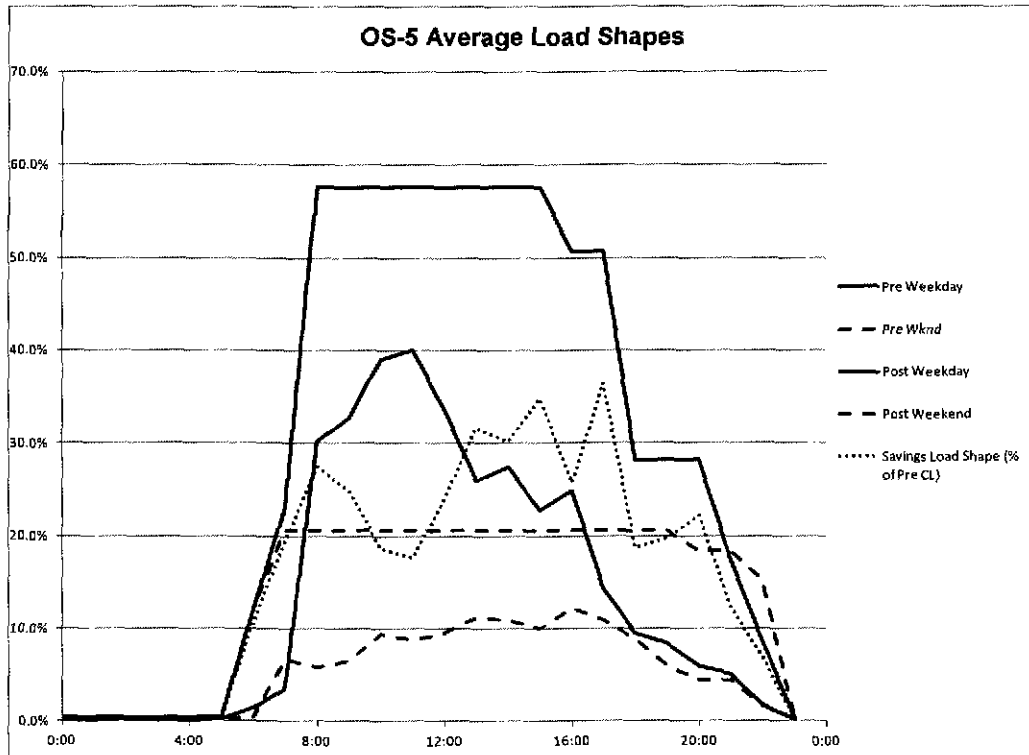

OS-1 Average Load Shapes

OS-2 Average Load Shapes
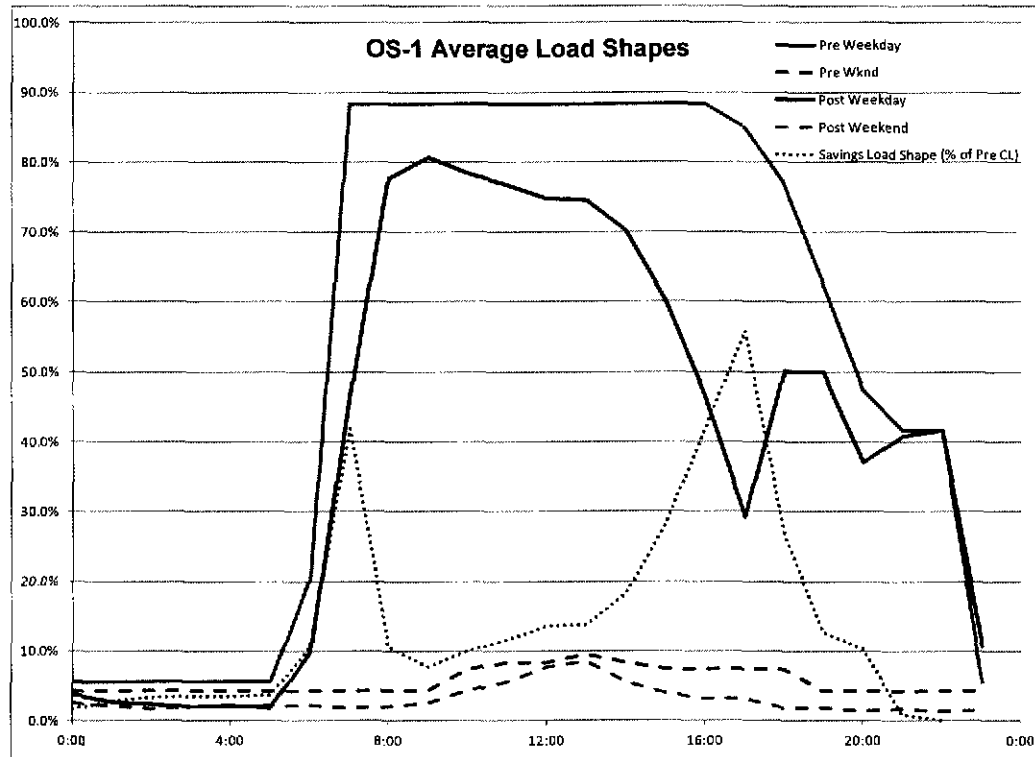
OS-3 Average Load Shapes

OS-4 Average Load Shapes

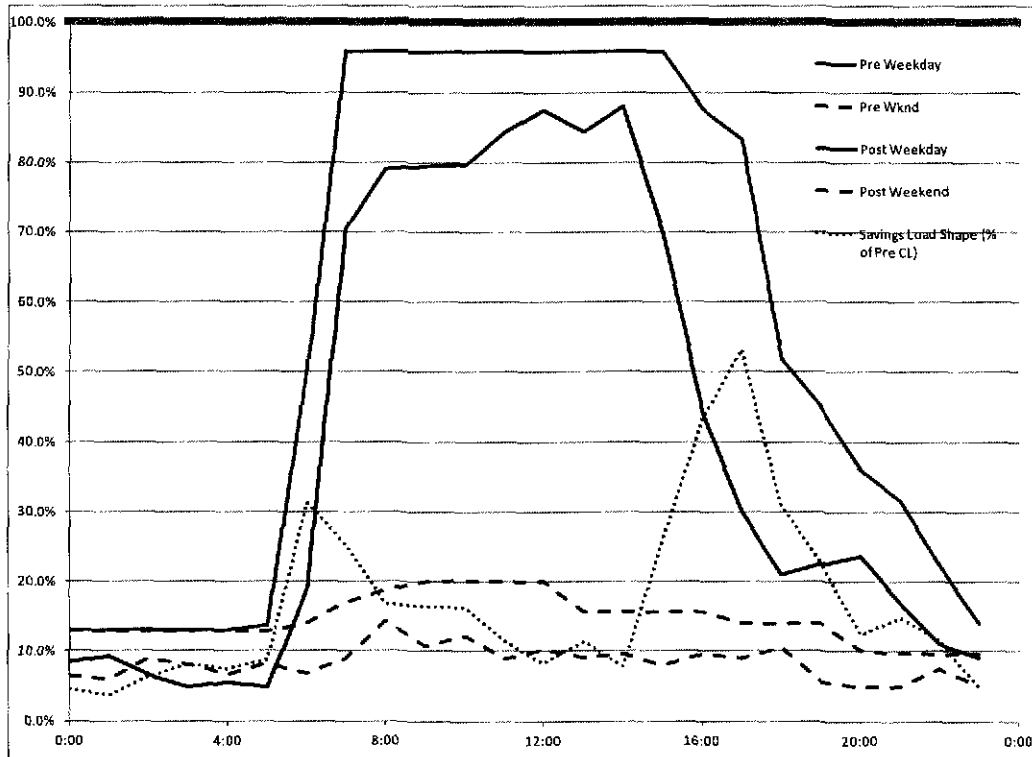TecMarket Works

OS-5 Average Load Shapes

OS-6 Average Load Shapes
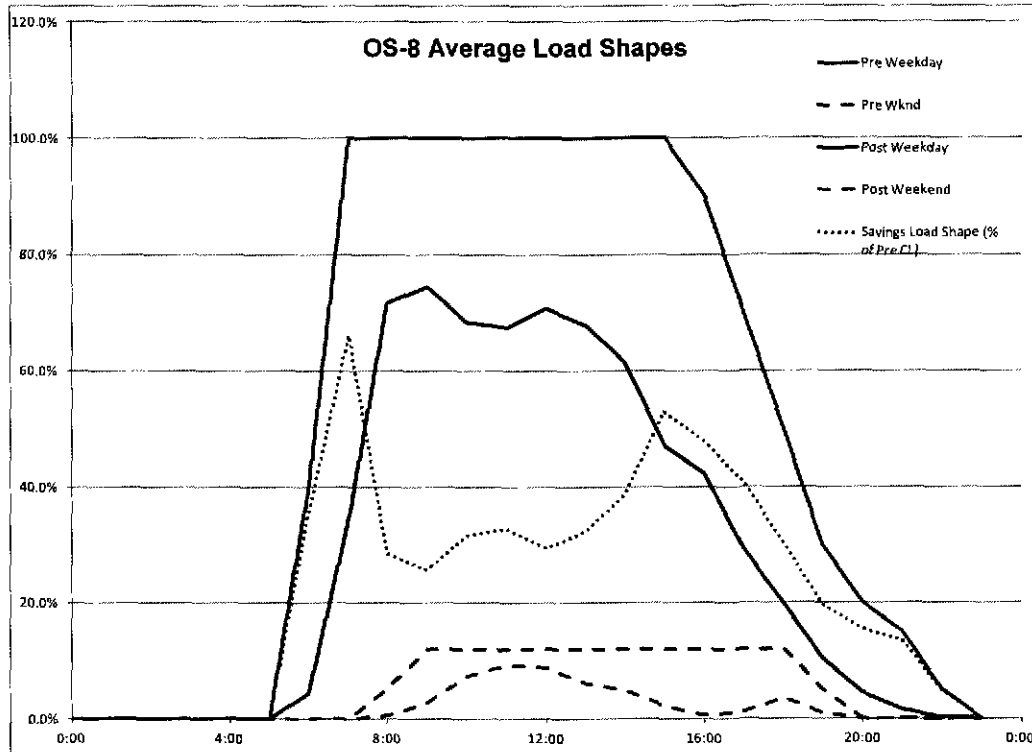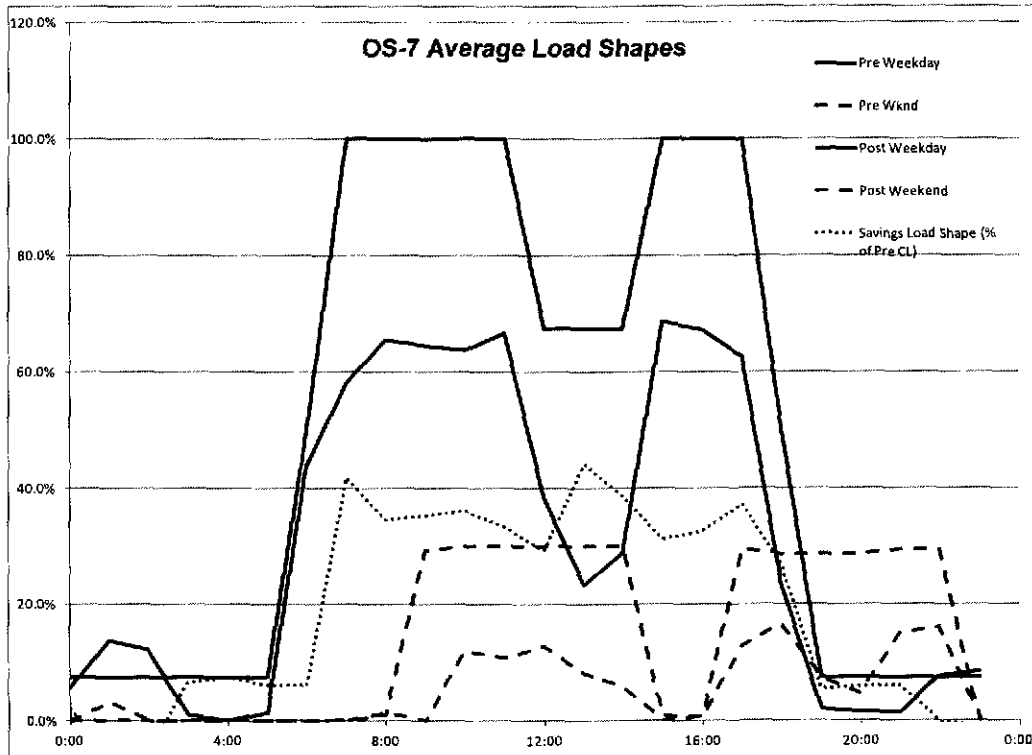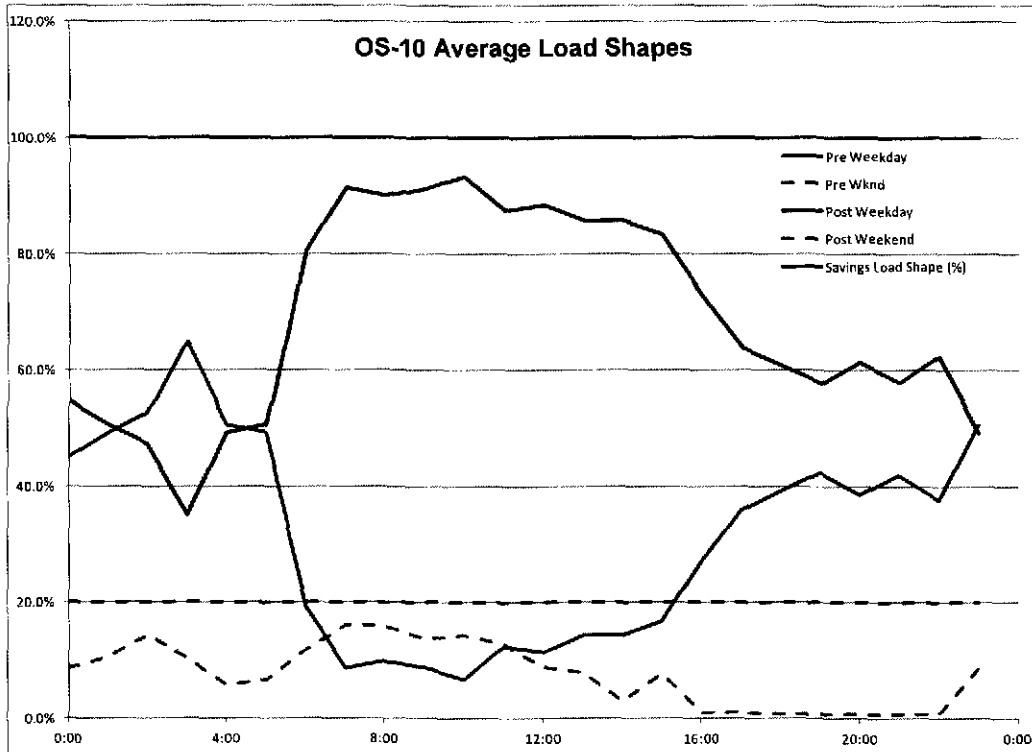
OS-7 Average Load Shapes

OS-8 Average Load Shapes

OS-9 Average Load Shapes

OS-10 Average Load Shapes

Appendix B: Results of HVAC Interactive Effects Simulations

	System	Cincinnati, OH	
		WHFe	WHFd
Assembly	AC / gas heat with economizer	0.130	0.246
	AC / gas heat no economizer	0.154	0.246
	AC / electric heat with economizer	-0.338	0.242
	AC / electric heat no economizer	-0.315	0.242
	Heat pump with economizer	-0.018	0.243
	Heat pump no economizer	0.005	0.243
	Electric heat only	-0.485	0.000
Big Box	AC / gas heat with economizer	0.076	0.268
	AC / gas heat no economizer	0.126	0.268
	AC / electric heat with economizer	-0.277	0.227
	AC / electric heat no economizer	-0.228	0.228
	Heat pump with economizer	-0.075	0.228
	Heat pump no economizer	-0.026	0.228
	Electric heat only	-0.371	0.000
Fast Food	AC / gas heat with economizer	0.083	0.262
	AC / gas heat no economizer	0.104	0.262
	AC / electric heat with economizer	-0.593	0.258
	AC / electric heat no economizer	-0.573	0.258
	Heat pump with economizer	-0.167	0.259
	Heat pump no economizer	-0.146	0.259
	Electric heat only	-0.721	0.000
FS Restaurant	AC / gas heat with economizer	0.098	0.372
	AC / gas heat no economizer	0.120	0.372
	AC / electric heat with economizer	-0.657	0.365
	AC / electric heat no economizer	-0.635	0.365
	Heat pump with economizer	0.100	0.365
	Heat pump no economizer	0.122	0.365
	Electric heat only	-0.794	0.000
Grocery	AC / gas heat with economizer	0.000	0.485
	AC / gas heat no economizer	0.125	0.485
	AC / electric heat with economizer	0.000	0.374
	AC / electric heat no economizer	-0.301	0.374
	Heat pump with economizer	0.000	0.374
	Heat pump no economizer	0.044	0.374
	Electric heat only	0.000	0.000

TecMarket Works   Appendices

	System	Cincinnati, OH	
		WHFe	**WHFd**
Hospital	AC / gas heat with economizer	0.058	0.083
	AC / gas heat no economizer	0.066	0.083
	AC / electric heat with economizer	0.053	0.083
	AC / electric heat no economizer	0.061	0.083
	Heat pump with economizer	0.056	0.083
	Heat pump no economizer	0.064	0.083
	Electric heat only	-0.001	0.000
Light Industrial	AC / gas heat with economizer	0.080	0.213
	AC / gas heat no economizer	0.063	0.213
	AC / electric heat with economizer	-0.368	0.221
	AC / electric heat no economizer	-0.384	0.221
	Heat pump with economizer	-0.076	0.221
	Heat pump no economizer	-0.092	0.221
	Electric heat only	-0.474	0.000
Motel	AC / gas heat with economizer	0.000	0.000
	AC / gas heat no economizer	0.837	0.055
	AC / electric heat with economizer	0.000	0.000
	AC / electric heat no economizer	0.617	0.055
	Heat pump with economizer	0.000	0.000
	Heat pump no economizer	0.563	0.055
	Electric heat only	0.000	0.000
Nursing Home	AC / gas heat with economizer	0.143	-0.009
	AC / gas heat no economizer	0.148	-0.009
	AC / electric heat with economizer	0.107	-0.009
	AC / electric heat no economizer	0.112	-0.009
	Heat pump with economizer	0.122	-0.012
	Heat pump no economizer	0.127	-0.012
	Electric heat only	-0.042	0.000
Primary School	AC / gas heat with economizer	0.072	0.263
	AC / gas heat no economizer	0.032	0.263
	AC / electric heat with economizer	-0.808	0.266
	AC / electric heat no economizer	-0.847	0.266
	Heat pump with economizer	-0.256	0.266
	Heat pump no economizer	-0.296	0.266
	Electric heat only	-0.856	0.000
Small	AC / gas heat with economizer	0.126	0.199

	System	Cincinnati, OH	
		WHFe	WHFd
Office	AC / gas heat no economizer	0.080	0.184
	AC / electric heat with economizer	-0.192	0.190
	AC / electric heat no economizer	-0.238	0.190
	Heat pump with economizer	0.023	0.190
	Heat pump no economizer	-0.023	0.190
	Electric heat only	-0.338	0.000
Warehouse	AC / gas heat with economizer	0.085	0.317
	AC / gas heat no economizer	0.081	0.317
	AC / electric heat with economizer	-0.316	0.318
	AC / electric heat no economizer	-0.320	0.318
	Heat pump with economizer	0.011	0.318
	Heat pump no economizer	0.007	0.318
	Electric heat only	-0.403	0.000

Appendix C: DSMore Table

Per Measure Impacts Summary for Non-Residential Smart $aver Prescriptive

Per Measure Impacts Summary for Non-Residential Smart $aver Prescriptive

Technology (Impacts)	Product code	State	EM&V gross savings (kWh/unit)	EM&V gross kW (customer peak/unit)	EM&V gross kW (coincident peak/unit)	Unit of measure	Combined spillover less freeridership adjustment	EM&V net savings (kWh/unit)	EM&V net kW (customer peak/unit)	EM&V net kW (coincident peak/unit)	EM&V load shape (yes/no)	EUL (whole number)
HPT8 4ft 2 lamp, T12 to HPT8		Ohio	191.6	0.041	0.033	Fixture	31.8%	130.7	0.028	0.023	No	12
HPT8 4ft 2 lamp, T8 to HPT8		Ohio	72.4	0.015	0.012	Fixture	31.8%	49.4	0.010	0.008	No	12
Low Watt T8 lamps, 4ft		Ohio	35.0	0.007	0.006	Lamp	31.8%	23.9	0.005	0.004	No	12
LW HPT8 4ft 2 lamp, replace T8		Ohio	86.0	0.018	0.015	Fixture	31.8%	58.7	0.012	0.010	No	12
LW HPT8 4ft 4 lamp, replace T8		Ohio	154.8	0.033	0.027	Fixture	31.8%	105.6	0.023	0.018	No	12
LW HP T-8 4ft 1L replace T-8 4ft 1L		Ohio	60.2	0.013	0.01	Fixture	31.8%	41.1	0.009	0.007	No	12
LW HP T-8 4ft 2L replace T-8 4ft 2L		Ohio	86.0	0.018	0.015	Fixture	31.8%	58.7	0.012	0.010	No	12
LW HP T-8 4ft 4L replace T-8 4ft 4L		Ohio	154.8	0.033	0.027	Fixture	31.8%	105.6	0.023	0.018	No	12
T8 2ft 2 lamp		Ohio	206.3	0.044	0.036	Fixture	31.8%	140.7	0.030	0.025	No	12
T8 4ft 2 lamp		Ohio	111.8	0.024	0.019	Fixture	31.8%	76.2	0.016	0.013	No	12
T8 4ft 4 lamp		Ohio	275.1	0.059	0.047	Fixture	31.8%	187.6	0.040	0.032	No	12
T8 8ft 2 lamp		Ohio	120.4	0.026	0.021	Fixture	31.8%	82.1	0.018	0.014	No	12
Occupancy Sensors under 500 W		Ohio	273.5	0.079	0.123	Sensor	31.8%	186.5	0.054	0.084	No	10
Occupancy Sensors over 500 W		Ohio	684.8	0.193	0.302	Sensor	31.8%	467.0	0.132	0.206	No	10
VFD HVAC Fan		Ohio	1,011.7	0.162	0.07	hp	31.8%	690.0	0.110	0.048	No	15
VFD HVAC Pump		Ohio	1,558.0	0.266	0.207	hp	31.8%	1,062.6	0.181	0.141	No	15
VFD Process Pump 1-50 HP		Ohio	270.6	0.043	0.033	hp	31.8%	184.5	0.029	0.023	No	15
Program wide												

Note 1. Each row contains per unit savings and different units, therefore the "Program Wide" row is left blank.

Note 2. Results from the linear fluorescent evaluation may be extended to other linear fluorescent fixture types not specifically studied in the sampled buildings.

Appendix D: Required Savings Table

The required table showing measure-level participation counts and savings for each program is below.

Measure	Participation Count	Verified Per unit kWh impact	Verified Per unit kW impact	Gross Verified kWh Savings	Gross Verified kW Savings
HPT8 4ft 2 lamp, T12 to HPT8	4,878	191.6	0.033	934,625	161.0
HPT8 4ft 2 lamp, T8 to HPT8	2,705	72.4	0.012	195,842	32.5
Low Watt T8 lamps, 4ft	174,488	35.0	0.006	6,107,080	1,046.9
LW HPT8 4ft 2 lamp, replace T8	7,237	86.0	0.015	622,382	108.6
LW HPT8 4ft 4 lamp, replace T8	4,267	154.8	0.027	660,532	115.2
LW HP T-8 4ft 1L replace T-8 4ft 1L	1,032	60.2	0.010	62,126	10.3
LW HP T-8 4ft 2L replace T-8 4ft 2L	26,249	86.0	0.015	2,257,414	393.7
LW HP T-8 4ft 4L replace T-8 4ft 4L	6,768	154.8	0.027	1,047,686	182.7
T8 2ft 2 lamp	2,161	206.3	0.036	445,814	77.8
T8 4ft 2 lamp	24,674	111.8	0.019	2,758,553	468.8
T8 4ft 4 lamp	21,648	275.1	0.047	5,955,365	1,017.5
T8 8ft 2 lamp	3,553	120.4	0.021	427,781	74.6
Occupancy Sensors under 500 W	28,904	273.5	0.123	7,905,244	3,555.2
Occupancy Sensors over 500 W	10,968	684.8	0.302	7,510,886	3,312.3
VFD HVAC Fan	602	1,011.7	0.070	609,043	42.1
VFD HVAC Pump	54	1,558.0	0.207	84,132	11.2
VFD Process Pump 1-50 HP	9	270.6	0.033	2,435	0.3

Final Report

Process and Impact Evaluation
of the My Home Energy Report (MyHER)
Program in Ohio

Prepared for
Duke Energy

139 East Fourth Street
Cincinnati, OH 45201

November 22, 2013

Submitted by
Nick Hall, David Ladd,
and Johna Roth

Integral Analytics
Michael Ozog and May Wu

Matthew Joyce

TecMarket Works
165 West Netherwood Road
2nd Floor, Suite A
Oregon, WI 53575
(608) 835-8855

TABLE OF CONTENTS

TecMarket Works

Executive Summary

Key Findings and Recommendations
The key findings and recommendations identified through this evaluation are presented below.

Significant Impact Evaluation Findings: Billing Analysis
A billing analysis was conducted to estimate the net energy savings from the program. The billing analysis relies upon a statistical analysis of actual customer-billed electricity consumption of customers receiving the MyHER mailings, compared to the change in savings over that same period for a matched comparison group to estimate the impact for the MyHER program.

The estimated impacts are presented in the "Energy Savings: Billing Analysis" section of the report, and a summary of the results is shown below:

	Annual Savings, 95% Confidence Interval		
	Lower Bound	Estimate	Upper Bound
Per Participant Savings kWh	205	220	234
Per Participant coincident kW savings	0.0628	0.0674	0.0717

Table 1. Summary of Program Savings by Measure

Measure	Participation Count	Ex Post (Adjusted) Per unit kWh impact	Ex Post (Adjusted) Per unit kW impact	Gross Ex Post (Adjusted) kWh Savings	Gross Ex Post (Adjusted) kW Savings
MyHER Report	261,028	220	0.0674	220	0.0674

Key Findings: Management Interviews
- The My Home Energy Report program provides Duke Energy residential customers with a meaningful look at their homes' energy use compared to other homes similar to theirs. Overall the program is well designed and effectively implemented.

    o See section titled "Program Description" on page 16.

- *Participation numbers are largely on target and customer opt outs represent a fraction of one percent of participating customers; this is a strong indication of the popularity of the reports.*

    o See section titled "Participation" on page 9.

- Among the few customers who do opt out, the three most common reasons for opting out are that customers consider the reports to be an inappropriate use of Duke Energy's resources (40%), customers believe they are doing enough to save energy (16%), and no reason given (10%).

    o See section titled "Call Handling" beginning on page 35.

- The reports are carefully designed for at-a-glance reading. Data is clearly presented and easily understood. Messages are crisp and actionable.

    o   See section titled "Report Messaging" on page 27.

- Call volume for the program is low. As of March 2013, for all states served by the program, inbound calls totaled only 8,137 calls on base of greater than one million customers. For Ohio, the total call volume during that time was 2,082 calls on a base of 260,000 customers; this equates to less than one percent of customers for all calls and less than two percent of customers for Ohio.

    o   See section titled "Call Volume" on page 34.

- The primary reason why customers contact Duke Energy about the program is to correct household characteristics, which is understandable given the data's third party origin. The most frequently corrected data points are heat fuel type, square footage, and home age in that order.

    o   See section titled "Call Handling" beginning on page 35.

- The program vendor's platform has added appreciable functionality for the customization of messaging and the display of data, which is foundational to the program's ability to drive behavior change. But these technical feats are not without their challenges. After more than a year of operations, the program vendor's platform is not yet as functional or as stable as the team would like. Report production has been hampered by data quality concerns, most of which have been caught and fixed prior to mailing.

    o   See section titled "Data Quality Assurance" on page 31.

- Report delivery meets on time service level agreements. Print quality has been an issue, but recent steps toward resolution appear to be promising.

    o   See sections titled "Report Delivery" on page 34 and "Print Quality" on page 33.

- Call center operations and email support from the Customer Prototype Lab are operating smoothly and those teams interface effectively with the program management team.

    o   See sections titled "Call Center Vendor" on page 42 and "Customer Prototype Lab" on page 42.

- The working relationship between Duke Energy and the program vendor is operationally functional and productive.

    o   See section titled "The Program Vendor" on page 40.

- Overall the program represents a roundly successful contribution to Duke Energy's efficiency portfolio and a model for a well-designed and effectively run behavior change program for residential customers.

    o   See section titled "Conclusions" on page 43.

Key Findings: Customer Survey

- There were 349 customers successfully contacted for the survey. Of these, 261 (74.8%) recalled receiving the Home Energy Report.
    - See section titled "Introduction" on page 48.

- 94.3% (246 out of 261, including 12 incomplete interviews) of the surveyed MyHER customers who recall MyHER are reading the report. If the full number of contacted customers are included in this calculation (N=349, as noted above), and the assumption is that those who don't recall MyHER throw the report away, this brings the percent of customers reading the MyHER down to 70.5% of the targeted customers.
    - See section titled "Customers Who Read the MyHER and Why" on page 48.

- Before being asked about what messages or tips customers recalled from the MyHER, most respondents defined energy efficiency in general terms, such as energy efficiency means "trying to use less energy" (64.7% or 161 out of 249) and "saving money on bills" (22.9% or 57 out of 249). Some respondents included specific examples of energy efficient activities in their definitions, such as "turn off lights when not in use" (7.2% or 18 out of 249) and "heating and cooling decisions" (6.8% or 17 out of 249).
    - See section titled "What Energy Efficiency Means to Customers" on page 55.

- On average, the 249 MyHER customers who completed the survey scored their interest in energy efficiency (8.58 on a 10-point scale) higher than their interest in reading the next MyHER (7.88). This finding is statistically significant with 95% confidence, though much of the difference comes from customers who do not read MyHER (4.18 rating for reading the next report, 7.42 rating for interest in energy efficiency). Interest in energy efficiency is also significantly higher for customers who think they do "more than others," or "about the same as others," than it is for interest in reading MyHER. However, for customers who think they do "less than others" or who "don't know" how they compare to others, rating scores for energy efficiency and reading MyHER are not significantly different.
    - See section titled "Interest in Energy Efficiency and MyHER" on page 59.

- Overall, 70.3% (175 out of 249) of Ohio customers surveyed are satisfied with how frequently they receive the MyHER, although 28.9% (72 out of 249) say they would prefer to receive reports by email instead of on paper.
    - See section titled "Frequency of Receiving MyHER" on page 61.

- Only about one MyHER recipient in twelve (8.4% or 21 out of 249) reports that there are errors on their report. The most common inaccuracies have to do with the size of the home (13 of 21), home heating (4 of 21), and the age of the home (4 of 21).
    - See section titled "Accuracy of Home Information" on page 62.

- There is a strong, but not absolute relation between customers' recent MyHER scores and their perception of how they are doing. While 77.0% (47 out of 61) of customers with MyHER scores that show their energy usage is "less than the efficient home" say their report usually shows they use less energy than average, 11.5% (7 out of 61) of these

recipients say their reports usually show that they use more than average. Similarly, while 66.7% (62 out of 93) of customers whose energy usage is "more than the average home" say their reports usually show their energy use is more than the average home, another 9.7% (9 out of 93) of these customers say that their reports usually show they use less than the average home.
  o See section titled "Energy Efficiency Scores" on page 63.

- Overall, more than half of MyHER customers surveyed are using the report to track their home's energy usage (62.7% or 156 out of 249) and are trying to improve their comparison scores (55.0% or 137 out of 249). Customers who are using the report to track usage (8.93) and trying to improve their scores (9.01) give significantly higher satisfaction ratings for the program compared to those who do not track usage (8.30) and those who are not trying to improve their scores (8.26).
  o See section titled "Energy Efficiency Scores" on page 63.

- A little over half of MyHER recipients surveyed (52.2% or 130 out of 249) were able to recall at least one tip or message from past reports. However, only 80.2% (227 out of 283) of these recalled tips and messages matched those included in the recipients' Home Energy Reports. Once incorrectly recalled tips were removed, 49.8% (124 out of 249) of customers correctly recalled an average of 1.83 tips or messages per customer who correctly recalled at least one tip or message. Most of the messages and tips recalled are about lighting (CFLs) or insulation and weatherization. More messages were recalled than tips, which is probably because more messages than tips have been sent to Ohio participants since the program began (the first six months of the program period under evaluation only included messages, not tips). Some tips and messages were recalled more than 500 days after they were mailed to recipients, though the average length of recall was 144 days for tips and 234 days for messages.
  o See section titled "Recalled Tips and Messages" on page 70.

- More than two-thirds of Ohio customers surveyed (70.7% or 176 out of 249) say the tips and messages are relevant and applicable for their household. Among customers who said the tips and messages were not relevant or applicable, the most common complaint is that they were already following the recommendations in the tips and messages before receiving them on MyHER reports.
  o See section titled "Tip and Message Relevance" on page 79.

- MyHER customers generally give the program high ratings for satisfaction, both overall (8.71 on a 10-point scale) and for specific aspects of the report and program (ranging from 6.33 to 9.17). Overall satisfaction with the program is significantly higher for customers who read the reports (8.83) and for customers whose recent MyHER scores show their usage is "less than the efficient home" (9.08) or "more than the efficient home, but less than the average home" (9.15). For specific aspects of the program, the highest satisfaction ratings are: "the reports are easy to read and understand" (9.17 overall); "I find the graphics helpful in understanding how my energy usage changes over the seasons" (8.64); and "I find the graphics useful in understanding how my energy usage

compares to others like me" (8.55). The lowest-rated aspect is, "The energy saving tips in the report provided new ideas that I was not previously considering" at 6.33 overall.
  o See section titled "Satisfaction with MyHER" on page 89.

- Customers who read MyHER participate(d) in twice as many Duke Energy energy efficiency programs (1.09) as those who throw them away (0.58).
  o See section titled "Participation and Interest in Other Duke Energy Programs" on page 103.

Recommendations
For a full explanation of recommendations see section titled "Recommendations for Program Improvements" beginning on page 44.

- Consider including kWh and dollars when presenting monthly and yearly usage comparisons. This option provides the benefits of showing customers actual kWh usage while retaining the familiarity and influence of showing dollar amounts.

- Efforts to reword potentially ambiguous statements on the reports may help mitigate customer misinterpretations, particularly those involving tone or sarcasm.

- While there is insufficient room for all FAQs on the reports, returning an explanation of average and efficient to the report would provide clarity about the report comparisons and preempt the need for customer clarification phone calls.

- Investigate ways to engage advanced customers on a deeper level in order to derive additional savings.

- Take steps to ensure that energy saving suggestions remain fresh and interesting.

- Conduct a cost-benefit analysis to determine the appropriateness of instituting full quality assurance protocols in advance of the report mailing.

- Establish a clear understanding between all parties regarding standards for data quality assurance, thresholds for print quality, and minimum criteria required prior to making and implementing change requests to improve the product or to accommodate customer feedback.

- Consider expanding the program to include other residential populations such as: those in multi-family units and those on flat bill and other rate plans.

- Consider investigating the impact of customers' knowledge of changing cluster sizes on energy savings by removing cluster size information from the monthly reports for a test group of customers to be compared to a control group who receive cluster size information on their reports. This investigation would provide additional validity to the notion that customer knowledge of cluster size influences their usage.

- Alternatively, add an answer to the MyHER FAQs to explain why cluster sizes change over time and why a customer may find themselves compared to different size clusters on different reports.

- Consider conducting a longitudinal analysis of existing data (plus or minus one year) to determine whether the energy savings observed from homes in small clusters is similar to energy savings from homes in larger clusters.

- Consider setting up test groups that receive the same MyHER with the same tips in order to conduct a more thorough and meaningful analysis of which tips are recalled and acted upon.

- Add specially coded CFL coupons to the MyHER mailing if it can be shown that the participants can use additional CFLs that they are not likely to purchase on their own.

- Perceived accuracy of the home energy use comparisons may be increased if household sizes are indicated as comparison criteria. This potential advantage should be weighed against the data collection and programming required to add such a factor to the clustering methodology.

- Consider replacing even more of the general efficiency messages on the second page of the report with more specific marketing messages for other Duke Energy programs.

- Consider if it is appropriate to make changes based upon a small number of errors or customer comments. The answer may well and appropriately be yes, but the threshold for change—and the impacts of doing so—should be clearly understood by all parties.

Introduction and Purpose of Study

Summary Overview
This document presents the process and impact evaluation report for Duke Energy's My Home Energy Report (MyHER) Program as it was administered in Ohio. The evaluation was conducted by TecMarket Works and subcontractors Integral Analytics and Matthew Joyce.

Summary of the Evaluation
This document presents the process evaluation report for Duke Energy's My Home Energy Report (MyHER) Program as it was administered in Ohio. The evaluation was conducted by TecMarket Works and Matthew Joyce, subcontractor to TecMarket Works. The interview and survey instruments were developed by TecMarket Works and Matthew Joyce. The customer survey was administered and analyzed by TecMarket Works. Matthew Joyce conducted in-depth interviews with program management.

The impact findings presented in this report were calculated using monthly billing data (for program net savings).

Evaluation Objectives
This report's objectives include a presentation of the MyHER program's estimated energy impacts. The process evaluation is intended to provide insights to help Duke Energy, and other interested parties, evaluate the program as it is currently administered. The report reviews program history, evaluates current processes, and considers customer surveys and participant feedback in order to diagnose issues and present recommendations for changes intended to increase energy savings, improve operational efficiencies, and enhance customer satisfaction.

Researchable Issues
In addition to the objectives noted above, there were a number of researchable issues for this evaluation. These include:

1. To solicit feedback from program participants about their experience with the MyHER mailings, such as their recollection of the messages and tips, their home energy scores, and their satisfaction with the reports;
2. To gain an understanding of customer demographic categories responding positively to the MyHER program.

Description and Purpose of Program

The *My Home Energy Report (MyHER) Program* is an energy efficiency program currently operating in Ohio. The purpose of the program is to provide Duke Energy residential customers with customized home energy reports that compare their home's electric energy usage with similar homes in order to encourage behavior driven energy savings through the principles of social norming. Eight reports are sent each year.

The program targets approximately 260,000 residential customers residing in individually metered single-family residences in Duke Energy's Ohio service territory. Rather than requiring people to sign up for the efficiency program, customers in the study group were automatically enrolled into the program. Starting in September of 2011 when the full commercial program was first launched, participants began receiving personalized reports comparing their monthly and annual energy usage with a group of homes of similar size, age, type of heating fuel and geography.

Duke Energy works with a third party program vendor that uses proprietary methods to analyze the customer's energy use and compare it to a peer group. The customer's monthly and annual energy usage is then graphed in comparison to the usage of an average home and an efficient home within the peer group. The reports present specifically targeted tips to save energy and offers to participate in Duke Energy's other energy programs. These targeted suggestions are based specifically on the customer's energy consumption patterns and home characteristics.

Program Enrollment, Eligibility, and Participation

Opt Out Enrollment

Unlike other energy efficiency programs offered by Duke Energy, this program is designed to use opt-out enrollment, so that eligible customers automatically receive a welcome letter and begin receiving reports without the need to formally sign up. With a growing number of utilities offering comparable behavior change reports, opt out enrollment is considered an industry norm for programs of this type.

Opt out enrollment offers advantages to customers and to Duke Energy. First, it enables a greater number of customers to benefit from a better understanding of their homes' energy use and how the most effective ways that they can save energy. Second, it diminishes program costs by reducing the need for program marketing, since opt in enrollment necessarily requires making customers aware of the benefits of the program prior to signing them up. Third, as the reports directly state: "When customers reduce their energy needs, it reduces the costs to provide energy and the need to build more power plants, which lowers bills for you, your community, and Duke Energy."

The opt out enrollment method is considered appropriate because the reports contain useful information specific to each customer. For this reason, the reports are deemed to be informational communications about customer accounts rather than solicitations. Customers always retain the ability to opt out at any time with a phone call or email to the contact details listed on every report. However, as of March, 2013, the Ohio program's opt out rate is extremely low at only 0.28% or 728 people on a base of slightly more than 260,000 participants.

Eligibility

To be eligible for the program, customers must live in a single family home with a single electric meter. They must be on a rate plan that bills for the full amount of energy used during a month. Customers must also have 13 months of consecutive billing data at the present address. Full program eligibility requirements are as follows:

- Active customer on a residential rate plan in Ohio
- 13 months of consecutive usage history
- Individual electric meter
- Single family home
- Non-apartment
- Non-business
- No fixed payment plan
- No equal payment plan
- No budget bill plan
- No percent of income plan
- Home address equals a billing address or post office box in same state as the service address
- Has not opted out of the program
- Not part of the control group (opt in is possible)

Duke Energy customers are considered to be MyHER program participants when they have:

- Met the program's eligibility requirements
- Received at least one MyHER Report
- Not opted out of the program

Participation

The MyHER program sends a paper report by mail to approximately 260,000 participating households in Ohio each month. Participation numbers vary due to opt outs and changes in customer eligibility status. Customer participation is validated monthly by Duke Energy using detailed reports from the program vendor. The table below shows official program participation numbers by month between program inception and March 31, 2013.

Table 2. Program Participation by Month

Month	Number of Participants*
Sept. 2011	59,436
Oct. 2011	176,986
Nov. 2011	242,476
Dec. 2011	241,726
Jan. 2012	239,929
Feb. 2012	238,049
Mar. 2012	236,447

Apr. 2012	256,552
May 2012	256,539
June 2012	242,291
Jul. 2012	252,229
Aug. 2012	255,021
Sept. 2012	257,027
Oct. 2012	256,033
Nov. 2012	257,623
Dec. 2012	257,623
Jan. 2013	259,656
Feb. 2013	259,844
Mar. 2013	261,028

In months when no new reports are sent, participation numbers are considered the same as in the preceding month since customers are considered to remain in the treatment group until the next treatment report is mailed.

Methodology

Overview of the Evaluation Approach

This process evaluation has two components: management interviews and participant surveys.

Study Methodology

The process evaluation has two components: management interviews and participant surveys. In-depth interviews were conducting with program management and the participant surveys were conducted with 249 customers in Ohio. The impact estimates were done via billing analysis.

Billing Analysis

The billing analysis used consumption data from MyHER recipients in Ohio (295,429 customers) that participated between April of 2011 and March of 2013. A panel model was used to determine program impacts, where the dependent variable was daily[1] electricity consumption from January of 2008 through March of 2013.

In order to determine the kW savings, the project used a Calibrated Load-Shape Differences Approach (CLSD). This approach is based on the results of the billing analysis (kWh saved) to establish the total and per participant amount of energy savings achieved by the program. The specific steps associated with this approach are as follows:

1. Conduct a billing analysis to identify program energy (kWh) savings achieved.
2. Use the utility-specific DSMore load shapes to calculate a kW coincident reduction factor for demand savings such that the total kW savings curve equals the annual savings estimate from the billing analysis.

This approach provides a reliable estimate of the per household and program-wide peak kW reduction for the least cost.

Management Interviews

For the process evaluation, in-depth interviews were conducted with the Duke Energy product manager, the Duke Energy database analyst, one of the Duke Energy managers responsible for new program development, and the Duke Energy manager of the Customer Prototype Lab, which provided call center and email support during the OH and SC pilots of this program, and which continues to provide email assistance for the full commercial version of Ohio program. In addition to these Duke Energy employees, TecMarket Works interviewed three representatives from the third party program vendor that creates and mails the reports —the vendor's production manager, client project manager, and project engineer. We also spoke with the lead call center representative from the third party vendor that provides call center services for the program. The interviews covered program design, execution, operations, interactions between organizations, data transfer methods, and personal experiences in order to identify any implementation issues and discuss opportunities for improvement.

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[1] Daily electricity consumption was calculated by monthly usage divided by number of usage days in each bill cycle.

Customer Surveys

TecMarket Works developed a customer survey, administered over the phone, for the MyHER Program participants, which was conducted from February 13 to March 29, 2013.

Surveys were completed with a random sample of 249 MyHER customers; in addition, twelve customers qualified for the survey, but were not able to complete the interview. When the customer was successfully contacted, the surveyor asked if the customer was familiar with the MyHER mailings. If not, the surveyor provided a short description of the MyHER mailings they have been receiving: *This program provided information on how much electricity you used in the previous month and in the previous 12 months compared to your neighbors and provided tips on how you could lower your electricity use and costs in becoming more energy efficient.*

If the customer still did not recall the MyHER, they were thanked for their time and the call was terminated. If they did recall the MyHER, the survey continued regardless of whether they read the MyHER. There were 261 customers out of 349 contacted (74.8%) who recalled receiving the MyHER report, though only 249 recipients completed the entire survey (twelve incomplete survey responses are not included in this report except for awareness of the program and whether they read MyHER).

MyHER customers were surveyed by TecMarket Works. The survey can be found in Appendix D: MyHER Customer Survey Instrument.

Data Collection Methods, Sample Sizes, and Sampling Methodology

Billing Analysis

The billing analysis used consumption data from all complete data provided for the MyHER recipients in Ohio (295,429 customers) that received the MyHER between April of 2011 and March of 2013. There were a total of 343,101 usable accounts after processing[2], of which 295,429 were report recipients, and 47,672 were control group members.

Management Interviews

Management interviews, as well as follow-up phone calls and emails, were conducted with staff members from Duke Energy, the program vendor, and the call center vendor. The interview instrument can be found in Appendix B: Program Manager Interview Instrument and Appendix C: Vendor Interview Instrument.

Customer Surveys

The complete survey was conducted with a random sample of 249 MyHER customers. The survey protocol can be found in Appendix D: MyHER Customer Survey Instrument. We attempted to contact program participants by telephone no more than four times at different times of the day and different days before dropping them from the randomly sampled contact list. Call times were from 10:00 a.m. to 8:00 p.m. Eastern, Monday through Saturday.

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[2] Useable accounts are those accounts which have billing data for both a portion of the pre- and post-participation period, as well as monthly kWh greater than 0 and less than 10,000 kWh.

Number of Completes and Sample Disposition for Each Data Collection Effort

Billing Analysis

N/A (all participants included, sampling was not used)

Management Interviews

During February and March of 2013, TecMarket Works interviewed four Duke Energy employees and four representatives from two vendors for this evaluation. This represents a completion rate of 100%.

Customer Surveys

A sample list of customer records was randomly pulled by TecMarket Works from a list of 244,810 participants with contact information provided by Duke Energy. Surveys were conducted and completed by telephone with 249 participants. The survey instrument can be found in Appendix D: MyHER Customer Survey Instrument.

Table 3. Summary of Data Collection Efforts

Data Collection Effort	State	Size of Population in Sample for Surveys	# of Successful Contacts	Sample Rate
Management Interviews	OH	8	8	100%
Customer Surveys	OH	244,810	249	0.1%

Expected and Achieved Precision

Billing Analysis

All savings estimates from the billing analysis were statistically significant at the 95% confidence level.

Customer Surveys

The survey sample methodology had an expected precision of 90% +/- 5.2% and an achieved precision of 90% +/- 5.2%.

Description of Measures and Selection of Methods by Measure(s) or Market(s)

This behavioral program does not include any energy efficient measures. The MyHER program consists of regular mailings to a targeted list of customers as described above.

Threats to validity, sources of bias and how those were addressed

Billing Analysis

The specification of the model used in the billing analysis was designed specifically to avoid the potential of omitted variable bias by including monthly variables that capture any non-program effects that affect energy usage, such as number of people in the home, as well as other Duke Energy offers.

Energy Savings: Billing Analysis

The goal of this billing analysis is to evaluate the energy impacts from MyHER since April 2011. The estimated MyHER savings obtained from the billing data analysis are presented below.

Table 4. Estimated MyHER Impacts

	Annual Savings, 95% Confidence Interval		
	Lower Bound	Estimate	Upper Bound
Per Participant kWh Savings since 04/2011	205	220	234

This table shows that the MyHER program produced statistically significant savings for participants in Ohio. Savings decline over time as we have seen in other research on comparison reports similar to MyHER. Since the program evolved from a pilot to a commercialized mass market program, more customers with lower saving potential would have been included.

Note that the billing data analysis includes variables to capture effect of participation in other Duke Energy programs after participation in MyHER. This is to explicitly control for any impacts from other program participation.

For this analysis, data are available both across households (i.e., cross-sectional) and over time (i.e., time-series covering both pre- and post-treatment periods). With this type of data, known as "panel" data, it becomes possible to control, simultaneously, for differences across households as well as differences within each household over time. This is accomplished through the use of a "fixed-effects" panel model specification. The fixed-effect refers to the inclusion of a customer-specific intercept terms. This term captures all time-invariant characteristics that affect the level of energy use, whether observed or not. The other variables in the model are time-variant variables that change over time, such as weather and program treatment.

The fixed effects model can be viewed as a type of differencing model in which all characteristics of the home, which (1) are independent of time and (2) determine the level of energy consumption, are captured within the customer-specific constant terms. In other words, differences in customer characteristics that cause variation in the level of energy consumption, such as building size and structure, are captured by constant terms representing each unique household.

Algebraically, the fixed-effect panel data model is described as follows:

$$y_{it} = \alpha_i + \beta x_{it} + \varphi P_{it} + \theta T + \delta DP_{it} + \varepsilon_{it}$$

where:

y_{it} = energy consumption for home i during month t
α_i = constant term for site i (the fixed-effect)
T = indicator variables for each time period in the analysis
P = indicator for the treatment for the program in question
DP = indicators for other utility-sponsored programs
$\beta, \varphi, \theta, \delta$ = vectors of estimated coefficients

$$x \quad = \quad \text{vector of non-program variables that represent factors causing changes in energy}$$
consumption for home i during month t (i.e., weather)

$$\varepsilon \quad = \quad \text{error term for home } i \text{ during month } t.$$

With this specification, the only information necessary for estimation is those factors that vary month to month for each customer, and that will affect energy use, which effectively are weather conditions and program participation. Other non-measurable time-variant factors (such as *economic conditions and season loads) are captured through the use of monthly indicator variables.*[3] To control for weather effects, the model includes temperature, humidity, and wind speed variables. This is more flexible and inclusive than only including HDD and CDD terms, as those variables assume a constant baseline of 65° for heating and cooling across all customers. The model delivers savings estimates that are based on actual weather during the treatment period.

Moreover this analysis involves both a treatment group and a control group. Treatment group includes customers who received the MyHER reports whereas control group includes customers who did not receive any MyHER report and was kept separately to provide comparison to the treatment group.

The effects of the MyHER program are captured by including a variable which is equal to one *for all months after the household participated in the program. In order to account for differences* in billing days, the usage was normalized by days in the billing cycle. The estimated electric model for the MyHER program is presented in Table 5.

Table 5. Estimated Savings Model for OH MyHER – dependent variable is daily kWh usage (savings are negative)

Independent Variable	Coefficient (daily kWh Savings)	t-value
MyHER Impact since April 2011	-0.6	-30.39
Sample Size	18,873,889 observations (343,101 homes)	
R-Squared	65%	

The complete estimate model, showing the weather and time factors, is presented in "Appendix O: Estimated Statistical Model". Based on these kWh savings and the load curves in DSMore, the implied coincident kW savings is 0.0674 kW/participant.

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[3] See Jeffrey Wooldridge Econometric Analysis of Cross Section and Panel Data (Cambridge: MIT Press, 2002), 283-284 for a discussion of this model and its applicability to program evaluation.

Management Interview Findings

Program Description
The My Home Energy Report program is an energy efficiency program that sends periodic personalized reports to residential customers who meet eligibility criteria. The reports are designed to increase energy savings behaviors by showing customers how their electric energy usage compares to an average neighbor and an efficient neighbor living in residences in the same geographic area with similar square footage, heating type, and home age.

Energy usage is displayed in a monthly bar chart comparison and in a 13-month line chart comparison. If customers perform better than average, the average household is dropped from the monthly comparison, so that customers strive to match the lower energy usage of their more efficient neighbors. Average home values are always shown on the 13-month line chart, since customer energy usage may be above average for some months and below during others. An example report is shown in Appendix E: Example MyHER Mailing.

Reports are created eight times per year and are distributed in paper format via U.S. mail. The reports present energy efficiency suggestions that are customized according to that customer's specific household characteristics. The suggestions are designed to further spur the customer to action by providing an estimate of the dollar savings that may be achieved by making the effort. The reports also contain customized marketing messages that encourage customer participation in other Duke Energy efficiency programs for which that specific customer is eligible.

Program Theory and Design
The program's design for generating behavior driven energy savings is based on the theory of "social norms." Social science research demonstrates that people tend to conform to social norms even when they deny such influence[4,5]. By sending letters that compare one utility customer's energy use with that of similar customers, several utility companies have used this normative effect to generate between 1.5 to 2.5% savings.[6] Longitudinal studies about the persistence of these energy savings are underway.

The MyHER program design is based in part on this research and on studied observations of market participants. It is also based upon information garnered from Duke Energy's Personalized Energy Report® (PER) and Home Energy House Call (HEHC) programs. However, the current design is most appropriately ascribed as the outgrowth of two years of pilot efforts in Ohio and South Carolina. These 2010-2011 efforts demonstrated that the program resulted in statistically significant savings.

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[4] Jessica M. Nolan, P. Wesley Schultz, Robert B. Cialdini, Noah J. Goldstein, Vladas Griskevicius, Normative Social Influence is Underdetected, *Pers Soc Psychol Bull July 2008 vol. 34 no. 7 913-923*, DOI: 10.1177/0146167208316691

[5] P. Wesley Schultz, Jessica M. Nolan, Robert B. Cialdini, Noah J. Goldstein and Vladas Griskevicius, The Constructive, Destructive, and Reconstructive Power of Social Norms, *Psychological Science* May 2007 vol. 18 no. 5 429-434 *DOI:* 10.1111/j.1467-9280.2007.01917

[6] Hunt Alcott, Social Norms and Energy Conservation, *Journal of Public Economics,* Volume 95, Issues 9–10, October 2011, Pages 1082–1095, DOI: http://dx.doi.org/10.1016/j.jpubeco.2011.03.003

Program Goals and Objectives

Because this program is designed with an opt out enrollment mechanism it does not have new customer acquisition goals (see Opt Out Enrollment). Instead, the program's primary numeric goals focus directly on energy savings. The program has an energy savings target of an average 219 kWh per participant per year. Progress toward this goal is to be determined by an impact evaluation.

In the absence of energy savings numbers to be derived from an analysis of the results of the impact evaluation, Duke Energy and its partnering third party vendors have been focusing the preponderance of their managerial efforts on the program's other strategic objectives for which feedback is more readily available. Those strategic objectives include:

- Educating customers about their energy use and encouraging them to take energy saving actions;
- Generating interest in other energy efficiency offerings;
- Deepening customer engagement;
- Responding to customer comments and suggestions in order to improve the reports and the program;
- And, increasing customer satisfaction.

When asked to comment on the place of this behavior modification program in Duke Energy's energy efficiency portfolio, one interviewee from Duke Energy used an analogy of a car to explain the role of the home energy report:

> "People constantly receive cues about their cars' gas consumption. The speedometer, odometer, gas gauge, and the price of gas are readily available to help people judge how much they're using and how much it is costing them in near real-time. That's not the case with your home's electric consumption. You just get a bill at end of month after you've used the energy. And, the bill isn't very informative for those customers who only look at the amount they owe and the due date. The home energy report helps to change that by showing customers how they're doing over time compared to others. It's a bit like comparing miles per gallon, but the reports also tell people how they can be more efficient and how much each action is likely to save them. In short, the reports provide a customer feedback loop and help people learn how to improve."

As important as this is, Duke Energy sees the home energy reports as serving other functions as well. The home energy reports are seen as a means of helping to strengthen customer satisfaction. Perhaps even more strategically, the educational aspects of the report and the periodic frequency of their delivery also serve as a starting point to begin engaging residential customers in the active management of their energy consumption as larger commercial customers have done for years. As another interviewee said, "We want to become their energy partner and not just a utility they write a check to." In other words, the home energy reports may be a one-way communication, but they are an invitation to the customer to begin a meaningful two-way conversation.

Market Barriers

Based on its previous pilot efforts, Duke Energy identified three potential market barriers to success: 1) customers not opening the reports; 2) not understanding the information presented; and 3) not taking action. The program design incorporates elements to address each of these. First, because the reports are delivered by paper mail, there is a risk that customers will assume the envelopes contain junk mail and not open them. To overcome this, the reports are sent in envelopes clearly displaying the Duke Energy logo and company address to denote the sender and nature of the communication. Second, customers may not have sufficient time available to read the report, nor may they have a comprehensive understanding of how energy is used in their homes. To overcome this, the reports are designed for at-a-glance reading with easy-to-understand graphics and simply worded explanations (see Report Design and Data Presentation). Third, customers may lack the financial resources and motivation to change their energy use over time. To overcome this, the reports present predominantly low cost / low effort energy saving recommendations. They also encourage adoption by showing the customer how much money that particular measure could save. The report delivery schedule of eight months per year provides ongoing contact and encourages continuous engagement. No additional market barriers where identified during the interview process.

Operational Roles

Operational roles for the MyHER program are shared between Duke Energy, two primary vendors, and several subcontractors. These roles are described briefly below and more fully in the following portions of this management review.

Duke Energy provides monthly billing and other customer data necessary to customize the energy reports, such as account information, records of participation in other efficiency programs, and data regarding customers' homes collected through direct customer communication or via the Personalized Energy Report and Home Energy House Call programs.

The Duke Energy product manager provides full operational oversight with responsibility for overall strategy, product planning, market expansion, determining messaging, selecting the criteria for customers to receive messaging, regulatory filing, financial reporting, vendor management and quality assurance.

The Duke Energy database analyst is primarily responsible for ensuring the program's data integrity. She provides systematic quality assurance, full program data support, and regular oversight on data interactions between Duke Energy and the program vendor.

The Duke Energy Customer Prototype Lab provides email support for customer inquiries.

The call center vendor handles all phone-related functions. They are staffed Monday to Saturday.

The program vendor handles report production and distribution from start to finish. The program vendor receives data from Duke Energy and transforms the information into individualized home energy reports by creating data clusters to compare customer usage to similar homes, suggesting energy saving actions, and presenting targeted Duke Energy communications. The program

vendor is also responsible for printing, comingling, and mailing the reports, although these functions are handled through subcontractors.

Program Development

The initial steps for planning and launching the My Home Energy Report program began during 2008, when Duke Energy recognized it was possible to influence behavior in order to produce energy savings. Duke Energy had already done much work on its efficiency programs designed to achieve energy savings via structural and equipment improvements, and the utility's senior managers were seeking a different approach to augment their portfolio. Work began in earnest as they researched academic studies and real world tests by market actors. During 2009, regulatory approvals came through and Duke Energy prepared to deploy two pilot efforts using in-house resources and a third party printer to produce the reports.

The first pilot launched in Ohio on February 22, 2010. It was designed to test data presentation and the frequency of report delivery. A comparable pilot effort was launched in South Carolina on May 28, 2010. The initial treatment groups consisted of 10,000 residential customers in Ohio and 8,258 residential customers in South Carolina. For each pilot effort, these overall treatment groups were divided into two groups. One group received quarterly reports and the other received monthly reports. These two groups were each then subdivided into receiving two different types of reports, with one subgroup receiving a report showing usage data with line graphs, while the other subgroup received their information in bar chart format. Process and impact evaluations were conducted by TecMarket Works to determine the results of these efforts in 2011. The findings from these evaluations and the many learnings from the pilots were incorporated into the improved design and deployment of a fully commercialized version of the program.

The first commercial version of the program launched in Ohio on September 10, 2011, with a target of 240,000 participants and a multi-staged startup process that added approximately 25,000 additional customers per week until the target was reached. The same internal Duke Energy departments that handled operations for the pilot efforts managed the delivery of the first full commercial version of the program.

While Duke Energy was preparing for this full commercialized roll out, the utility was simultaneously using an RFP process to select a third party contractor specializing in data analysis with a platform robust enough to produce and mail the home energy reports on a scale sufficient to reach its distribution targets in all approved service territories. The program vendor worked with Duke Energy during the latter half of 2011, to design, develop, and deploy systems for generating the home energy reports according to contract specifications. Full commercialized systems transition from Duke Energy to the program vendor occurred during March of 2012.

At the time of transition, a letter was sent to all participating customers in Ohio to tell them of the upcoming changeover. The letter focused the improvements to the report that the transition made possible. The text of the letter read:

> "You've asked for more, so we're adding on! There may be a slight 'construction delay,' but when your new My Home Energy Report arrives,

it will have two pages of valuable information about your energy usage and even more energy saving tips. Oh, don't worry. You and your home will still be front and center. How Am I Doing charts will continue to show how your energy use compares to similar homes – each month and over time. But now we'll have more room to answer your questions, like 'What can I do to reduce energy use?' and 'How much could this tip save me?' Stay tuned! We think you're going to like your new report!"

After a few months to fine tune efforts, on May 25, 2012, a commercialized version of the program launched in South Carolina with a target of 215,000 customers. Then, on June 12, 2012, Duke Energy made its next handoff, transitioning call center operations from the Customer Prototype Lab to the call center vendor. With this segue complete, the respective program actors assumed their currently assigned roles.

A commercialized roll out to 46,000 residential customers in Kentucky occurred on August 22, 2012. North Carolina followed on October 17, 2012, with the largest target yet, 500,000 residential customers. In contrast to these commercial launches, Indiana began with a pilot effort in May of 2012.

Operations in all service territories are mentioned here because the same systems and methodologies are used to create and distribute reports in all states. Thus, overall report volumes, operational challenges, and any decisions made concerning the program in one state are likely to impact operations in the others.

MyHER Report

Overview
The program vendor receives a secure transfer of customer data on a nightly basis from Duke Energy, which includes updated energy usage, billing records, account and rate changes, eligibility criteria, and household demographics. This customer data is then passed through two distinct stages — integration and production — in order to create the MyHER reports. The integration stage runs daily and is designed to sort, catalog, parse, and combine the data according to a complex set of software rules that prepare the data for report production.

Report production occurs eight months per year, with each report corresponding to a calendar month. For each monthly cycle the data is divided into four weekly batches. Each batch is processed independently, as customers are clustered with others having similar billing dates and similar household characteristics. Each batch then consists of hundreds of clusters containing tens to thousands of houses in each.

Once the dynamically assigned clusters are established, the kWh energy use of individual households in each cluster are used to determine how much electricity the "average" home and the "efficient" home use. Each individual household's kWh usage is then compared to the average and efficient homes in their cluster to show relative performance each month for the previous 13 months. Kilowatt hours are converted to dollar figures using a statewide rate factor

that makes it possible to display meaningful comparisons of homes that may be on different rate plans.

To further encourage energy savings behaviors, the front page of the report presents two specific tips that suggest seasonally and household-appropriate ways to save energy, such as weatherization or using task lighting. The tips, which are developed by the program vendor, also show how much money enacting that tip is likely to save that particular customer based on household characteristics. The rear page of the report presents two additional messages developed by Duke Energy. The program vendor uses yet another set of software rules to ensure that the Duke Energy messages displayed on the report promote specific energy efficiency programs for which the customer is eligible or a more general energy saving suggestion in the event that no specific program promotion is available.

Once these tips and messages have been dynamically assigned, PDF versions of the individual customer home energy reports are produced. The program vendor maintains quality assurance measures throughout the production process to catch potential errors. However, as an additional measure, from each of the four weekly batches, a sample set of 10,000 PDFs is pulled and transferred to Duke Energy for a second level quality assurance check.

Once this second level measure has been successfully completed, the full batch of PDFs is sent to a subcontractor for printing and mailing. The PDFs are also uploaded into a program vendor-hosted web portal called the Enterprise system, so that the reports can be viewed by representatives from the call center vendor and the Customer Prototype Lab. The following sections discuss this process in more detail.

Data Handling

Throughout the creation and development of the data integration and report production processes, the program vendor worked with Duke Energy to identify common issues that might arise with the data used to generate a customer's report. For instance, if a customer is missing the current month's billing data, then a software rule flags the customer ID and labels it as ineligible for a report since there is no new data available to create the monthly comparison. A similar rule applies to customers who are missing their thirteenth month of previous billing data since that anchors the beginning of the year-to-date comparison. Likewise, the program vendor needed to write a software rule that stops the report process if the customer is missing two bills within the 13 month period, excluding the first and thirteenth months, since too many missing data points cause the graphs to render poorly. Missing billing data is reconciled with Duke Energy on a nightly basis to mitigate such issues, but the rules must be in place in order to control the small percentage of situations to which they apply at the time the batch is processed.

Because the data integration process is so complex, it has required almost continuous process improvements to fine tune the most appropriate ways to handle unanticipated data idiosyncrasies. On numerous occasions, additional software rules needed to be written to deal with the unforeseen circumstances. Billing data issues continue to provide a good example. In some cases customers may receive two bills in a single month. Under the originally envisioned scenario, the second bill would be added to the first bill. However, in another scenario, the first bill should be considered cancelled, while the second bill shows the corrected amount. Without a software rule

in place to address this real world business practice, the customer's MyHER report would present inaccurate information. These types of fixes are made whenever they are discovered.

Home Characteristics

The comparative nature of the MyHER reports relies upon the program vendor's ability to automate the creation of data clusters of similar homes. The program vendor's data integration process ensures that each customer ID is paired with several identifying household characteristics:

- Age of home
- Size (square footage)
- Heating fuel type
- Location (multiple vectors based on latitude and longitude)
- State (ensures neighborhoods do not cross state lines during clustering)
- Bill dates (ensures billing periods are of similar duration to produce accurate comparisons for consumption)

These characteristics are compiled from a variety of data sources with a specific order of precedence based upon their availability and deemed degree of accuracy. Those data sources are:

1. Customer specified information, such as corrected numbers for home square footage, age, and heat fuel type, as captured via telephone conversations with the call center vendor or email exchanges with the Customer Prototype Lab;
2. Household characteristics recorded during a visit by a professional auditor as part of Duke Energy's Home Energy House Call (HEHC) program;
3. Household characteristics provided directly by customers when they completed a data collection survey as part of Duke Energy's Personalized Energy Report (PER) program;
4. Duke Energy algorithms applied to confirm customer provided data, such as heating fuel type, since customers may erroneously think they have gas or electric heat, while an analysis of their annual electric load shape reveals otherwise;
5. And, household characteristics acquired by the program vendor via publically available Experian third party data.

Once these characteristics have been appended to the customer ID, the characteristics are used to help identify other similar households that will be clustered together later in the process to generate the home energy use comparisons.

All parties agree that this aspect of the report generation process is well-conceived and consistently well-executed.

Data Clustering

One key difference between the original clustering methodology used during the early program development and the current deployment is that Duke Energy's original methodology relied on static clusters of homes that were generated one time based upon similar home characteristics. This static clustering offered the advantage of facilitating comparisons with a consistent set of homes each month. However, the static clustering method did not easily accommodate the fact

that new comparable homes became eligible each report cycle, while other homes needed to be dropped from the comparison pool based upon eligibility changes or upon customer requested corrections to their home characteristics. The program vendor's clustering methodology accommodates these data changes by employing a K-means data clustering methodology that creates new and accurate cluster assignments for each report cycle. While sacrificing a static comparison to the exact same houses each month, the K-means clustering methodology offers the advantage of ensuring a more accurate, consistent, and unbiased comparison of homes with similar attributes each report cycle, which Duke Energy deemed fundamental given the changing nature of the data.

Despite its differing dynamic nature, the program vendor's methodology yields clusters closely similar to those generated by Duke Energy's original static method. The dynamic clustering methodology works by creating a coordinate, or vector, for each piece of household information — bill date, home size, home age, fuel type, longitude, latitude, proximity of location, etc. — to receive a weight. Heuristic algorithms then run until convergence is reached and clusters of similarly weighted homes are generated. The reports refer to these clusters as "neighborhoods," but the homes are grouped based upon their similarly weighted attributes rather than being grouped as customers might commonly think of a neighborhood, such as homes sharing sidewalks, streets, and proximity to local landmarks.

The number and size of the data clusters changes each month because they are dynamically generated based upon the vector weightings of the data. A sample of the program vendor data for March of 2013 revealed that Ohio has an average of 835 neighborhood clusters per month, while across the entire Duke Energy service territory the program vendor system is generating an average of 3275 clusters. The analysis also showed that the numbers of homes within a cluster ranges from a low of 10 homes to a peak cluster size of 8924 homes, which happened to be in North Carolina. The average cluster in Ohio contains 345 homes, while the average maximum is 2,660 homes. Theoretically there is no maximum to the number of clusters or to the number of homes. However, the numbers noted above represent typical cluster sizes.

In essence, the program vendor's clustering methodology recognizes clusters that are too large do not provide an accurate comparison, while clusters that are too small may have their average and efficient home comparisons swayed by the undue weighting of individual homes. It is for this reason that if a cluster contains less than 10 similar homes then the customer does not receive a report. Duke Energy and the program vendor are currently considering the trade-offs between raising that minimum to provide greater statistical significance versus the reduced energy impacts resulting from sending reports to fewer homes.

Calculating Average and Efficient Homes
The key to the social norming process employed by the MyHER reports is the way that the reports compare a customer's energy usage with others. The reports make two different comparisons.

The first comparison is to the "average" home. Average is calculated by determining the arithmetic mean for the cluster. This is calculated by summing all kWh usage in the cluster and then dividing by the number of homes in the cluster. So, for a hypothetical cluster of three homes

with 1000 kWh, 1200 kWh, and 1400 kWh, the sum would be 3600 kWh. When divided by three, this equals an average of 1200 kWh.

Because social norms tend to influence behavior toward the group average, Duke Energy also adds a second comparison designed to further influence customers toward additional energy savings. For this reason, the reports also compare customer energy usage to an "efficient" home. The efficient home represents the 25th percentile (first quartile) of energy usage such that homes at this mark use less energy than 75% of homes in the cluster.

Use of Rate Factors to Demonstrate Monthly Energy Costs in Dollars

While home energy use comparisons are calculated using kWh, the data is graphed on the reports in terms of dollars. Dollar amounts are calculated using a multiplier known as a rate factor, which is a composite figure created to represent the blended value of all the charges a customer would be presented with on the bill. This single number is multiplied by the kWh used by each customer to determine the dollar amount to display on the reports.

The rate factor for Ohio is $0.107. The rate factor is calculated by the Duke Energy rates department after allowing for the various tariffs that eligible customers may be on, as well as riders, taxes, and other fees. This single number is considered to be the most appropriate way to create a statewide "apples-to-apples" dollar value comparison between sets of customers who may be on different rate schedules.

Duke Energy made the decision to present the information this way for two primary reasons: 1) dollar amounts were considered to be more easily understood by customers than kWh with which they are less familiar; and 2) customers were considered to be more likely to take actions to save energy when shown dollar figures on the monthly and annual graphs, as well as in the energy tips on the front page.

This decision is now being reconsidered for several reasons. First, while Duke Energy makes it clear on the reports that dollar values shown are not bill amounts, customers inevitably compare the dollar amounts shown on the home energy reports with the dollar amounts shown on their bills. When the numbers don't match, confusion can ensue. The product manager indicates that fewer than a dozen customers have complained over the life of the program, making it a statistically insignificant number of complaints when approximately one million reports are sent each month.

However, another potentially stronger reason to consider showing the amount of energy used in kWh instead of, or in addition to, dollars is that customers actually use kWh. This is the true metric of their usage. It is also the metric for measuring the impact of the energy savings for the MyHER program. Thus, a commonality of metrics and language may be achieved by reporting the values in kWh.

Moreover, reporting usage in kWh would also serve to begin educating customers about the importance of kWh for their homes in a manner akin to miles per gallon for their cars. In the same way that fuel economy influences their driving behavior and vehicle purchases, a stronger understanding of home energy economy has the potential to lead to greater and more persistent

savings. Duke Energy is currently exploring how to achieve this potential upside without making the reports overly complicated or diminishing the behavioral motivation achieved by presenting the energy comparisons in terms of dollars.

Report Design and Data Presentation

The focal points of the MyHER reports are the monthly energy use comparison on the front page of the report and the annual energy use comparison on the back page of the report. The monthly comparison commands at-a-glance visual attention. The headline: "How am I doing?" immediately establishes context, while three bold bars compare the reader's home energy use to that of the average home and efficient home. Bar lengths provide a graphic display of information, while dollar amounts specify the exact values.

The second page of report also sports a prominent graph; this one is a line graph displaying monthly energy use for 13 months to facilitate year-to-year comparisons of energy usage. Average and efficient homes are also shown, so that customers can see how their annual performance compares to their peers. In this way, the line graph encourages both internal and external competition as customers strive to better both their own performance and that of others.

The program vendor provided a significant enhancement to fostering this sense of competition when it created a way to alter the display of the monthly bar chart. When the reports were produced by Duke Energy, the amounts displayed for the average home, your home, and the efficient home would change each month as the data changed. But pilot testing and industry research revealed that when customers were shown that their energy usage was lower than average, their performance tended to revert toward average rather than continuing to improve toward the efficient home. Duke Energy and the program vendor resolved this issue when the program vendor developed a way to drop the column displaying average home performance and center the remaining two columns (see Appendix E: Example MyHER Mailing for an example). This change necessarily causes readers to focus on the difference between their homes and efficient homes, thereby continuing to spur a sense of competition toward achieving even greater energy savings. However, even when customers use less energy than average for a given month, the average home performance continues to be displayed on the annual usage line graph since the customer may be above average and below average at different times of the year.

Similar attention to detail has gone into the explanations that accompany the monthly comparison chart (Figure 1). To the right of the monthly bar chart a legend explains whose electricity usage is being compared to the customer. The legend then lists the number of households in the data cluster, as well as providing the heat source, range of square footage, and age range of the houses in the cluster. This information is presented so that customers understand how closely similar the homes they are being compared with are. This is intentionally stated to increase credibility and build customer trust in the accuracy and reliability of the comparisons.

How am I doing?

Whose electricity usage is being compared to mine?

340 households compared
• In the Spartanburg area
• Non-electric heating
• 200-800 sq. ft
• Built in 1955-1977

$127
Your
Home

You spent $6 more than the average home. Ready to be better than average? Join the ranks of the efficient Try one of the tips below.
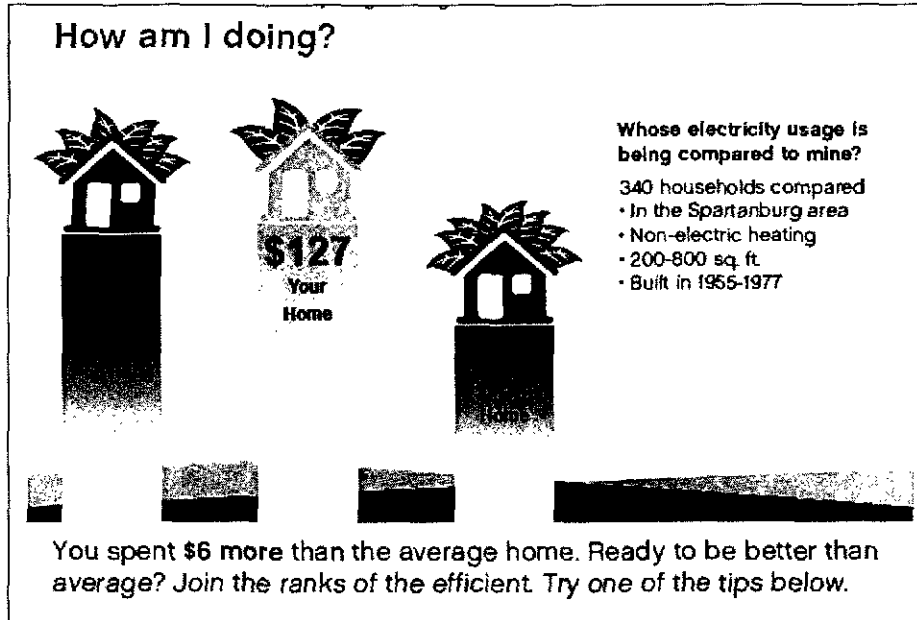
Figure 1. Monthly Energy Use Comparison

This verisimilitude became a point of disagreement between Duke Energy and the program vendor during the development phase. The program vendor felt strongly that the number of homes, square footage, and age range shown on the reports should be changed each month to automatically and accurately reflect the exact homes in that month's dynamically generated comparison cluster. Duke Energy disagreed, citing calls and emails from customers who were confused as to why those numbers were changing each month. Because customers were focusing on those "wrong" changes instead of focusing on their changing energy use, the two parties eventually agreed to display a fixed range of comparison for the square footage and home age. Those were set at +/- 300 square feet and +/- five years from those attributes of the customer's home. This change ensured that customers would see a consistent and reliable benchmark for the comparisons, even though the actual numbers may vary slightly according to the data points in that month's dynamically generated cluster.

Other elements of the report have been the subject of careful consideration as well. According those we interviewed, each element and detail of the reports has been carefully considered to elicit a trusting and positive response from Duke Energy customers. The typeface, colors, gradient fades, and differing layouts between first and second page were all specifically chosen. For instance, the color yellow was selected to show the homeowners energy usage since it is the easiest color to see, while green was picked for the "efficient" home to reinforce the "green is environmentally friendly" message. Likewise the houses atop the monthly bar chart columns were selected for their simple iconic representation of a home, and the green leaves were designed to simultaneously imply financial savings and environmental friendliness.

The current two page format was expanded in March of 2012, when the program vendor began producing the reports in order to provide more space for additional information. Prior to that time, the reports consisted of a single page of new information with monthly and annual graphs

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showing on the same page along with the energy saving tips. The rear of the report consistently listed frequently asked questions. To create extra space for the graphs and messages, the FAQs were shifted to a welcome letter (see Appendix G: Welcome Letter and Frequently Asked Questions) that arrives by mail along with the first report. The program website replicates these FAQs so customers can refer to them long after the welcome letter has been disposed of.

Two questions: "What is this report?" and "Why would Duke Energy try to help me save energy?" were retained on the front page of each report since they were considered important to establish and ensure context for the reader. The reports also contain other consistent elements including email and telephone contact details, a link to the program website, and a QR code inviting those with mobile phone scanners to watch an online video about the home energy reports.

Participant surveys, conducted as a part of this evaluation, had not yet been completed when we spoke with the product manager, call center representative, and the Customer Prototype Lab (CPL) manager, but all three people indicated that customers are responding positively to report design, according to unsolicited customer feedback obtained via the call center and email (This finding was later corroborated by satisfaction ratings from the participant surveys as discussed in the Satisfaction with MyHER section below.). A link to a new online customer opinion survey was added to the reports in March of 2013, and is anticipated to provide on-going feedback in the future.

Report Messaging

Duke Energy devotes considerable time and effort to ensuring that the language in the home energy reports remains consistent with the company brand — the copywriting is crisp, the wording friendly, and the tone encouraging. This messaging discipline is maintained through a combination of creative freedom on the part of the writers and keen editorial oversight during the internal review process. While every word on the reports has been carefully considered, three areas of the report contain dynamic messaging sections that serve to turn an otherwise static report into an individually targeted mailing to encourage the adoption of specific energy saving measures appropriate to that particular home.

Explaining the Graphics

One of the hallmarks of the MyHER program is the program vendor's ability to customize the messages that a customer sees according to their home's monthly usage, their cluster's values for average and efficient home, and the specific characteristics of their home. This customization applies to captions below the graphics, to home-specific energy savings tips on the front page, and to tailored messages from Duke Energy on the second page.

The first area with customized messaging is the caption below the monthly energy use graphic on the front page. That wording is automatically generated based on software rules designed around the numeric differences between the monthly cluster's unique values for the average home, your home, and the efficient home. So, if a customer uses more energy than the average home, the message might say, "You spent $6 more than the average home. Ready to be better than average? Join the ranks of the efficient. Try one of the tips below." However, if the

customer uses less energy than the efficient home, then the message might say, "Way to go! You are among the most efficient homes in your area. You can always save more. Try one of the tips below."

A similar customization methodology applies to the 13-month comparison on the second page. Using the same customer examples as just described, these messages might say, "Your usage for this month has <increased> compared to a year ago. You spent <$ value> <more> than the <efficient homes> in your area in the last 12 months." Or it might say, "Your usage for this month has <decreased> compared to a year ago. You are <among the most efficient homes in your area for the year. Great job.>" The brackets < > are inserted here to illustrate conditional text delivered according to preset conditions in the program vendor's software coding.

In all cases, the messages are intended to be encouraging and are written to prompt customers to take the next step. However, even the best intentioned messages are open to customer interpretation. The call center manager informed us that a tiny number of customers have complained about "the sarcastic tone." When asked what this complaint referred to, one customer whose energy usage was below average, but above efficient, interpreted the automatically generated sentence, "Nice work. You used X dollars more than the efficient home." to be sarcasm. The call center representative explained otherwise and the customer ended the call satisfied. But, Duke Energy takes such customer feedback seriously, even if the number of such complaints is statistically insignificant. As a result, the team is considering changing the wording shown for that situation and returning to the report template a definition of efficient home in order to avoid future concerns. Making adjustments to respond to customer feedback is an important part of Duke Energy's continuous improvement process.

Presenting Energy Saving Ideas

Just below the current month comparison chart on the front page is a headline that reads, "What can I do to save money and energy?" This headline tops a two column box that presents home energy tips specifically targeted at that home for that month. The tips suggest ways the customer can save energy and improve their monthly comparisons with neighboring homes.

Tips cover topics ranging from lighting, HVAC, and water heating to weather sealing, appliance use, and new Energy Star recommendations. While many tips are generally applicable to all customers at any time, others are seasonally appropriate and are tailored to the particular characteristics of a given home. So, a tip about air conditioning appears during the summer and new homes don't receive suggestions about replacing old windows. A sample tip is shown in Figure 2 below.

```
Why pay for power you don't use?

Cut the standby power used
for home entertainment

Save up to $39 per year.

Your TV and all the associated gadgets
use power even when they are off. This
"standby power" is waste and can account
for as much as 10% of the energy used in
your home! To reduce this waste, plug your
television and its accessories into a power
strip or surge protector, and turn of the
strip when these items aren't in use.
```

Figure 2. Energy Saving Tip

To ensure the tips remain fresh, the program vendor tracks the tips presented to the customer each month so that messages are not repeated until all unseen messages in its library have been used. Tips can also be prioritized by potential energy saving impacts, so recommendations that can produce higher savings are mentioned before those likely to have a lesser impact. This system makes it possible to present one customer with a message about CFLs in January, while a neighbor who becomes eligible to participate in the program in February may see that same CFL message in March, while the first customer sees a message about task lighting that month.

To further increase the likelihood of the customer taking action, the program vendor pairs each tip with an estimate of the dollar savings that action might bring. Savings estimates are calculated based on a combination of deemed energy savings for the measure and particular household characteristics. For standard measures, such as replacing an incandescent bulb with a CFL, these calculations are fairly straightforward, however others can be considerably more complicated. For instance, showing an accurate savings estimate for installing a programmable thermostat requires calculations based upon variables like heating fuel, square footage, and type of HVAC system, which may or may not be known depending upon the data available. Going to such lengths is far more complicated than simply presenting one standard dollar amount to everyone, but Duke Energy feels the extra effort is worthwhile because it demonstrates for the customer the real world financial value of making the effort.

The program vendor maintains a library of tips (Appendix F: Summary of Energy Saving Action Tips and Messages) and is contractually responsible for writing new tips and calculating the associated energy savings. Tips were written at the start of the contract and revised to align with Duke Energy's technical specifications and branding considerations. The savings estimates were likewise approved. By April of 2013, the program vendor had reached the end of its original collection of tips and customers were about to begin receiving reports with tips that they had seen previously. For this reason, the Duke Energy product manager was encouraging the program vendor to draft a new batch of tips. On the drawing board for the new round are sequential follow-up tips based on earlier actions. For instance, currently customers may see a message about installing a programmable thermostat, but that would be the only tip of that type

that they see. With follow-up tips, customers might see sequential messages explaining: 1) how to actually program the thermostat, so it doesn't blink like a VCR clock; 2) how to program it differently for weekdays and weekends; 3) how to change it when you go on vacation; and, 4) the difference between hold and temporary settings. Whether presented once per monthly report, or made available all at once on the program website, such a sequence of tips would serve to deepen customer engagement and maximize the energy savings potential for each measure.

Duke Energy Messages

The second page of the report is visually commanded by the annual energy trend chart. Below that, reads a headline "Take action. Reduce your use." This marks the section of the report reserved for two customized messages directly from the MyHER product manager. The messages come in two types — general energy savings suggestions and promotions for other Duke Energy efficiency programs. The messages the customer sees are determined by the customer's previous participation in other Duke Energy programs. See Figure 3.

Take action. Reduce your use.

Heading out for a vacation?

Don't let energy vampires run wild in your house while you're out of town this summer. Every appliance with a clock, "power brick" or remote control is CONSTANTLY drawing power – even when switched off. Fight back! Do some unplugging before you head out the door. And consider installing a power strip or two. That way saving energy is as easy as flipping a switch.

One more thing: Be sure to turn your thermostat up or off before you head out. No point paying to cool a house when nobody's home!

Wouldn't it be great if doctors still made house calls?

Think those days are gone?

If you qualify for a Home Energy House Call, your free in-home energy assessment includes personalized information tailored to your home and energy practices, along with a free Energy Efficiency Starter Kit.

Visit www.Duke-Energy.com/MyHER612 to find out if our Energy Experts are accepting appointments in your neighborhood.

Figure 3. Duke Energy Messages

The MyHER product manager creates and maintains a calendar of messages for the year. Typically, one of the two messages shown each month is either a seasonally appropriate or a general message that can run at any time of the year. Seasonally appropriate tips could include suggestions for how to save energy while baking (delivered during November) or the direction ceiling fans should spin in summer (delivered in June). General messages could include energy savings tips like how to check the seal on a refrigerator door with a dollar bill, safety messaging such as calling 811 before you dig, or requests for contributions to Share the Warmth to help with heating assistance. These messages are generally shown on all reports. The second message slot tends to be more customized, based on promotions for other efficiency programs each month.

The MyHER product manager works with colleagues to develop a schedule to encourage enrollment in various Duke Energy efficiency and rebate programs each month. The program vendor's system cross-checks Duke Energy's customer participation records, and if the database indicates that the customer has not yet participated in the featured program, it includes a promotional message encouraging the customer to enroll (see Figure 3 above). If the database indicates that the customer has already participated in the program, then the program vendor's

software coding replaces the program promotion with a more general substitute, such as a message encouraging readers to visit the Duke Energy website to watch energy efficiency videos.

Messaging Challenges

This system generally worked well for many months. But the team ran into a challenge in December of 2012 when it sought to send out segmented messages regarding participation in Duke Energy's CFL program. This particular promotion added a new wrinkle to the system. Instead of requiring a software look up to determine whether a customer had previously participated in the program at all, this segmentation scheme required the program vendor to query data regarding the number of CFLs that the customer had previously ordered. If the customer had ordered 9 or fewer CFLs, then they were to receive a message encouraging them to order additional bulbs. If they had ordered 10 or more CFLs, they were to receive a message encouraging them to be sure to install the bulbs that they already had.

Querying this new data field proved to be problematic, as was revealed during quality assurance checks. The underlying issue was subsequently identified and fixed before the next month's cycle. The effort proved effective, lifting CFL participation by more than three percent in OH, NC, and SC where the messages were sent.

With a dynamic system as complex as the one the program vendor uses to generate the reports, a certain number of technical challenges are inevitable. Other issues, however, are more accurately considered to be data quality lapses resulting from the complex nature of the data integration and report generation process. Those challenges are discussed below.

Data Quality Assurance

The above mentioned challenges represent the types of issues that Duke Energy and the program vendor work closely to resolve either through advance strategic planning or upon discovering a problem during the process of data quality assurance. Quality control checks are built into each step of the data ingestion and report generation process on the program vendor side. Duke Energy also maintains its own quality control measures to ensure that the reports are generated using accurate data, that graphs and messages are displaying correctly, and that the appropriate customers are receiving reports.

When the program vendor assumed report generation in March of 2012, much of the quality assurance process resided within its production arm. However, as errors have been discovered, Duke Energy has added layers of oversight. Since that transition, the following types of data quality issues have been discovered and corrected:

- Incomplete data population;
- Improperly rendered graphs due to missing data;
- Data precedence issues, whereby older inaccurate data replaced corrected information;
- Inappropriate data ranges;
- Inaccurate messaging per household characteristics;
- Dollar savings estimates of incongruous amounts;
- Not accounting for program participation;

- Inaccurate message segmentation;
- Duplicate mailings to some participants within a single month (sent several weeks apart);
- Mailing to approximately 100 customers in a control group.

Many, but not all, of these errors were corrected prior to mailing. To ensure they don't return, as well as to find as yet undiscovered issues, Duke Energy instituted a policy whereby the program vendor sends bundles of PDFs as a representative sample for review. As more errors have been found, the amount of PDFs to be checked per production batch has increased. The current amount is 10,000 PDFs per weekly batch or 40,000 PDFs per month. When Duke Energy receives the PDFs, the MyHER program data analyst strips the data out of the PDFs and checks it for accuracy using a combination of algorithms on a SQL server and visual data inspection in batches of 1000 in a CSV file. This secondary quality assurance method has uncovered numerous data integrity issues that have subsequently been satisfactorily addressed. Yet not all issues can be found through data sampling.

For this reason, Duke Energy also receives a file from the program vendor containing all customer information handled during the month. With approximately one million customers receiving reports and still more customers not receiving reports that month due to various eligibility requirements, the file size is immense. The data analyst reviews this file as well. It was during such a review that the inadvertent mailing of 100 customers in a control group in North Carolina was discovered. The source of the problem was identified and the fix applied. The 100 customers were removed from the control group and the database was updated with a note explaining the reason for the transfer.

While this error was small, the incident has sparked concern within Duke Energy. Managers are concerned that the program's full quality assurance review of customer data is currently occurring after the reports have been sent. Thus, the MyHER product manager and others are currently considering the possibility of instituting a full data integrity check for all PDFs prior to granting approval for release to printing and mailing. With such a high number of customers in the program, this step is being carefully considered prior to undertaking the many steps necessary to automate as much of the requisite quality assurance process as possible. "The effort may be a necessary trade off given the volume of the data and the complexity of the data handling rules for this product. It's a cost-benefit decision," said one interviewee.

Printing and Delivery
Once Duke Energy has confirmed that the PDF data complies with quality assurance requirements and that all necessary corrections have been made, the program vendor receives the go-ahead to release the PDFs to the printing subcontractor that handles the paper production and mail delivery. The printing subcontractor prints the reports and envelopes. Then it sends them to a commingler for processing and mailing via the U.S. post office. The printing subcontractor also checks for first-time program participants and inserts a welcome letter for those who have not previously received a report.

Report Frequency
Pilot testing in Ohio and South Carolina compared the effectiveness of monthly versus quarterly delivery of the reports. Results showed that customers who received monthly reports saw greater

energy impacts. However, the MyHER reports are currently delivered to qualifying customers eight times per year. Since heating and cooling costs account for the largest shares of a typical home's energy usage, the reports are generally sent three months in a row during winter and three months in a row during the summer, since these are peak heating and cooling months. The reports are also sent every other month during fall and spring when customers typically require less HVAC. This frequency of delivery was deemed to be the optimum balance between reinforcing energy saving behaviors and managing program costs for production, printing, and delivery. Duke Energy retains the ability to shift report delivery months for a given state without impacting delivery in other states based upon weather, programming needs, or regulatory requirements.

Print Quality

Both the Duke Energy staff and the program vendor employees we spoke with expressed concerns about the quality of the printing done by the printing subcontractor. Minor issues regarding text, color, and gradient fades have been identified and resolved. But one significant issue involved the presence of streaks or bands of white in the color banner that made it appear that the printer is running out of ink.

The printing subcontractor maintains its own quality control process that duplicates one report out of every thousand for a visual inspection prior to mailing. Employees at the printer were satisfied, but the MyHER product manager double checks the print quality using returned mail and seed names of fellow Duke Energy employees who share their reports in the office. It was these Duke Energy second level checks that identified the printing issues.

Once made aware of the issue, the program vendor worked with the printing subcontractor to resolve the situation. The problem appeared to be caused by the ink jet technology used to print the reports. Ink jet printing is used because it is less expensive than laser-based technologies. Given that the customer is likely to spend a limited time reading the report, the economic value of ink jet printing seemed an appropriate trade off to the higher quality and greater consistency of other printing technologies. However, large-scale production revealed the printing flaws, which were not seen during pre-contract demonstrations.

According to the program vendor operations manager who oversees the printing subcontractor, the printing house made several attempts to eliminate the print artifacts. The most recent attempt was the deployment of a new proprietary ink jet technology. This was the last effort to be considered by Duke Energy and the program vendor, who were simultaneously evaluating other vendors. The new technology was tested in full-scale deployment for one monthly cycle during April / May of 2013, and was deemed adequate, albeit with a continued watch to ensure that print quality standards are maintained.

The program vendor is contractually obligated to uphold print quality standards per the terms of its service level agreement. Those terms were temporarily suspended while the issue was being investigated. Now that the decision about the printing subcontractor has been reached, those terms will be enforced.

Report Delivery

The service level agreement between Duke Energy and the program vendors specifies that the vendor, and hence the printing subcontractor, will ensure the 98% on-time delivery of each batch of reports in a 17-day production cycle, with four batches per month and a total volume of approximately one million reports across all service territories. Of these reports, approximately 260,000 are currently designated for Ohio customers. Both the program vendor and Duke Energy report that these service levels are currently being satisfactorily met.

Enterprise Server

In addition to holding responsibility for producing and distributing the reports, the program vendor also provides an online web portal, called the Enterprise server, which hosts customer household data, as well as PDF copies of each customer's monthly reports. This system makes it possible for agents of call center vendor and Customer Prototype Lab to input customer-generated corrections for their household data (e.g. square footage, home age, heating fuel type) and call up copies of monthly reports to discuss them with customers on the phone or via email.

The Enterprise system is designed to run 24 hours per day, even though the system only needs to be accessible to customer service representatives during business hours. As with any server, it must be maintained and it occasionally experiences operational issues. The majority of the time, those issues are fixed through scheduled maintenance and planned performance upgrades. However, as may be expected with an online system, the server has also experienced a few crashes that have taken it offline. The root causes of these issues have been different each time. Most often, the system has gone down for only a few hours or less due to a software issue that was quickly fixed. Once, a hardware failure required a day for replacement. This also occasioned the installation of redundancy measures to prevent the issue from reoccurring. Despite this handful of down times, the call center and email support agents report that they are pleased with the system's ease of use and robust reliability.

Call Center Customer Support

Because the MyHER program is designed as an opt out program that delivers reports throughout the year, Duke Energy deemed it important to have a toll-free number and a dedicated call center for customer support. The call center vendor provides call center operations for the MyHER program in all Duke Energy service territories that offer the program. This same third party vendor provides call center support for other Duke Energy programs, as well. For this program, call center vendor staffs 13 trained customer service representatives (CSRs) and two team leads. The call center vendor began supporting the MyHER program overall on June 11, 2012.

Call Volume

Call volume for the program is low. For all states served by the program, only 8,137 inbound calls have been received as of March of 2013. For Ohio, the total call volume as of the same date was 2,082 calls. Given that reports are now sent to more than one million Duke Energy customers, this equates to less than one percent of customers. The percentage of calls by customers from Ohio is correspondingly low.

Overall, call volume averages less than 30 calls per day, with lows of typically less than 20 and peaks reaching less than 100 calls per day when reports are mailed. The call center team leader

that we interviewed reports that individual state call volume follows a predictable month over month pattern. Each time a new round of customers is added to the program, the percentage of calls rises for the first two reports, peaks by the third report, and then diminishes since by this time the majority of customers who desire to correct errors or ask questions have done so.

TecMarket Works considers this pattern, and the correspondingly low percentage of customer calls, to be a positive indication that the reports are well-designed with accurate data, meaningful comparisons, and clear messaging.

Call Handling

All CSRs are equipped with a Telescript software system that generates context-specific scripting to guide them in the most appropriate responses. The system also captures all call data for record keeping, reporting, and quality assurance.

When customers call in, agents are trained to acknowledge the customer's request and to ask for an account number. This is used to locate the appropriate household records. If the customer has called previously and is calling from same number, the Telescript system will auto-populate the information. However, agents always have the customer confirm the account to ensure they have the proper file just in case someone is calling from one phone to discuss a different household's report or they are using a different phone. If no existing record is found, the agent inputs the customer's name, address, phone number, and account number.

After ensuring the customer's contact information is in the system, the customer's specific desires are addressed. Depending upon the request, the CSR uses a dropdown menu to select the most appropriate call type. This brings up a script that specifies how to deal with that kind of call.

If the customer has specific concerns, those are addressed first. For instance, customers sometimes ask why the amount on the reports doesn't match the amount on their bills. The Telescript system provides the CSR with a response akin to the following: "Your bill uses your kWh and your actual rate, but to compare everyone on a level playing field we use an average price per kilowatt-hour because customers may have different rates." Similarities between bill and report also arise because billing cycles do not necessarily correspond with monthly report cycles, so agents explain that the reports are intended to be informative and advisory rather than duplicative.

Once specific concerns have been addressed, the agents access the program vendor's online Enterprise system that provides online access to the customer's specific reports, so they can view customer reports in real time, while the customer is on the phone. The agent verifies that the most recent report, which is typically what the customer has in hand, is showing the correct square footage, heating type, and year the home was built. Making one or more of these corrections is the most common reason to call, so customers frequently mention them. But the agents are trained to always ask in an effort to be thorough, since the conversation presents an ideal opportunity to improve Duke Energy's records and the accuracy of the home report comparisons. Any corrections are updated in the Enterprise system. The changes are also captured to show how many customers are calling to correct their information and which data

points are the most frequently corrected. The most frequently corrected data points are heat fuel type, square footage, and home age, in that order.

Next, the agents direct customers to the energy saving action items on bottom of page one and the Duke Energy message section on page two. Depending upon the interest of the customer, a discussion of other energy efficiency saving measures may follow. The Telescript system contains answers to previously asked customer questions. So agents are prepared to discuss where to install energy efficiency upgrades, where customers can find tax incentives for energy efficiency, CFL mercury content, and more. The agents are also trained to discuss basic information about Duke Energy's other energy efficiency programs. If customers are interested in a specific program, the agents provide the toll-free phone number and an offer to transfer the caller to the appropriate department. If the customer is calling to order free CFLs, this service is also taken care of during the phone call.

The Telescript system also guides the CSR in the event that a customer wants to stop receiving the reports. As the agents accommodate the request, they are trained to inquire for a specific reason the customer wants to opt out. Check boxes in the system make it easy to capture common reasons, including when customers feel they're already efficient enough; they no longer need the report; they don't feel the report is accurate; they don't want to waste paper and/or postage; or the report is being sent for a garage account or a home business. Another field captures less standard reasons. The three most common reasons for opting out are that the reports are an inappropriate use of Duke Energy's resources (40%), customers believe they are doing enough (16%), and no reason given (10%).

Conversely, if a customer wants to opt in to the program, the Telescript system guides the agent through that process as well. The agent collects account information and confirms eligibility based on disqualifiers such as an apartment number or a lack of 13 months of billing information. If the customer is qualified, then the data and request are passed to Duke Energy for processing, since the customer may be part of a control group and further tracking adjustments may need to be made. If the customer is ineligible due to lack of 13 months of billing data, they are informed that they will be automatically enrolled when they become eligible.

Because Ohio allows customers to choose their gas or electric supplier, Duke Energy sends reports to some homes that have elected to purchase their energy from alternative suppliers. The call center vendor periodically gets calls from these customers with questions that need to be addressed by those suppliers. Those calls are transferred as a matter of course.

Approximately 95 percent of customer calls follow one of the previously mentioned general scenarios. The remaining five percent of customers may have specific concerns that require redirection to other Duke Energy departments, such as bill inquiries, making payments, arranging credit, and speaking with customer service about other account-related matters. The frequency of redirected calls was notably diminished beginning on September 17, 2012, when an interactive voice response (IVR) system was installed on the front end of the program's phone system. The system intercepts inbound calls and says:

"Thank you for calling My Home Energy Report. To ensure that you receive accurate and courteous service this call may be recorded. For questions or more information about My Home Energy Report press one. For questions about your Duke Energy bill, electric services and all other questions press two."

This less-than-30-second step helps to ensure that customers reach the right department as swiftly as possible. It also helps reduce call handling costs, since it frees up MyHER agents to spend more time focusing on program-related calls.

Training

In addition to the on-the-spot support provided by the Telescript system, the call center vendor's customer service team underwent two days of intensive training on June 7 and 8, 2012. Training was provided by Duke Energy representatives from the MyHER new product development and product management teams, as well as by representatives from Duke Energy's Customer Prototype Lab (CPL), which handled call center functions during the previous two years of piloting and operational functioning. Training included a program overview, PowerPoint presentations, training playbooks, sample reports for agent review, the program welcome letter, and a comprehensive compilation of frequently asked questions and suitable replies developed and tested during two years of customer phone calls. The agents were also trained on how to use the program vendor's Enterprise system.

All customer responses generated by the Telescript system and used by the call center vendor and CPL (see Email Customer Support below) have been carefully crafted by Duke Energy to deepen customer engagement and foster customer satisfaction.

In the event the program vendor's Enterprise server goes down, CSRs are trained to report the issue so a trouble ticket can be sent to the program vendor. CSRs then manually note the customer's account information and any requested data corrections, so the information can be added to the Enterprise system when it comes back online. If customers have questions about their reports, then the agents return the customer's calls when the system is operational. The call center vendor reports that this has only been an issue approximately five times during their usage of the Enterprise system.

Quality Control

Quality assurance is maintained through three layers of call monitoring. For all Duke Energy programs that it supports, not just MyHER, the call center vendor's internal review process randomly reviews two calls by each agent per week. The call center vendor quality assurance lead then meets with the agent to review the call and conduct coaching according to an agreed upon checklist. This is the first level of review. The next level is conducted by Duke Energy staffers who randomly select 50 calls per month and perform a similar checklist review and coaching session. The final layer of review is performed by the MyHER product manager, who also randomly selects calls to listen to.

Call review primarily focuses on set standards for interpersonal engagement with the customer, such as building rapport, being apologetic, remaining professional, explaining things effectively,

avoiding slang terms or abbreviations the customer may not be familiar with, and providing respectful service. Agents are also judged on call management, such as how well they steer the course of call and keep the caller on point. Another point quality controllers look at is customer focus, which is a category for assessing an agent's job knowledge and problem-solving skills as applied to meeting customer's expectations, offering solutions to customers, and acting with customer interests in mind. Yet another category of review looks at call results to ensure that business objectives are being met and supported, such as trying for one-call resolution, properly identifying the caller, being proficient, and upholding the Duke Energy brand.

When interviewed, the MyHER product manager reported that current call center operations are going well. Earlier in the program cycle, shortly after call center launch, she indicated that quality assurance revealed a discrepancy between call monitoring suggestions and initially trained procedures for reviewing a customer's report. That has since been resolved.

Service Level Agreements
In addition to meeting quality assurance standards, the call center vendor's service level agreements specify requirements for average answer time, average call handle time, and abandonment rates. Both the call center vendor and Duke Energy report that the call center is well-staffed, well-trained and that call standards are being met.

Email Customer Support
In addition to call center support, customers also have the option of receiving support via email. The email address, HomeReport@duke-energy.com, is printed on the front of every MyHER report. Email messages are routed to Duke Energy's Customer Prototype Lab (CPL), which has supported the program since its pilot stages in Ohio and South Carolina. CPL handles the program's email support for all Duke Energy service territories and not just for Ohio. CPL service representatives receive the same training and use the same customer response playbook and Enterprise software system as their counterparts at the call center vendor.

As with the customer call center, weekly email volume depends upon report batch timing. Likewise, email volume tends to drop off after customers have received their fourth or fifth report. Total CPL email volume during a representative week of Feb 18-22, 2013 was 51 emails. During the next week, 88 inquiries were received. Of these, Ohio customers sent in 21 emails, which is consistent with Ohio customers having received multiple reports by February. The ratio of email inquiries to customers enrolled in a given state appears to be consistent.

Also, like the call center, the most frequent reason for customer email is to correct comparison criteria (i.e. heating type, square footage, home age) for their home. Other customer emails focus on the following categories, which are not ranked in order of popularity.

- Opt out (the reason why is captured, see below)
- Opt in
- General energy efficiency questions
- Billing, service, and credit questions
- Other

When customer requests such as these are processed, the CPL staff use the program vendor's Enterprise system to make the requested change to the customer's account.

Reasons for customer opt outs include:
- Customers feel they are doing all they can (most popular)
- Not concerned about usage
- Have received the report enough times
- Report is incorrect and they are not patient enough to correct it
- Color commentary similar to "This is a waste of money."
- No reason stated
- Other

Quality Control
Quality assurance is maintained through two levels of monitoring by the CPL director and the response team supervisor. Both conduct weekly reviews of all CPL inbound and outbound communications. They also conduct spot checks of emails specifically for the MyHER program. Because CPL has supported the program for a considerable time, the majority of customer requests or questions are routine. So the quality reviews skim standard exchanges such as square footage corrections and focus more closely on other questions such as, "I've followed all the tips on the reports and I want to save even more. What else can I do?" Even these responses are routine at this point, according to the CPL director, but they are regularly reviewed to maintain quality.

Service Level Agreements
CPL's customer service level agreement provides for MyHER program support between 8 a.m. and 5 p.m., Monday through Friday, and allows two business days for responses to customer queries by U.S. mail, email, fax or social media. These agreements are being met or exceeded. The level of support provided by the CPL is considered to be of high quality by all parties TecMarket Works spoke with.

Customer Paper Mail
Periodically, customers also send in paper mail to the program. Those messages are directed by Duke Energy mail code to the product manager, who reads the message and forwards the message to the call center for processing, unless a personal response from the manager is seen as necessary.

Website
The current program website consists of a limited number of web pages containing static information, such as a primer on how to read the report and a list of frequently asked questions. It also has one interactive feature, a two minute online video featuring an actress who explains more about the reports. The website has generated more than 8,900 web page views according to Google Analytics, which Duke Energy deploys to track website metrics for the My Home Energy Report web pages.

An analysis of usage between January 1 and December 31, 2012, revealed that the program website had generated 8,955 page views with an average time on page of 2:10. Of these, 73

percent were new visitors. Direct entry of the URL into a browser resulted in 43% of the program's web traffic, while 34% of site visitors came from search engines, 14% came from referring links, and 9% came from campaigns.

Web traffic rises and falls on a weekly basis, but overall traffic rose steadily throughout 2012, as more and more customers were added to the program. The MyHER program's web page www.duke-energy.com/homereport/ received 1,611 hits, but this merely provides the viewer with links to their state-specific versions of the website. Ohio customers were the most frequent visitors with 1,474 visits and an average visit duration of 2:15. [7] North Carolina sent 786 visitors for an average visit of 2:20, while South Carolina sent 546 visitors for an average visit of 3:12. Kentucky customers visited 184 times with a visit duration of 2:07. Indiana customers visited 936 times during 2012, with an average visit duration of 0:56.Video plays were the most common activity, representing 43% of all events on the site.

Social Media

As a service to the program, the Duke Energy Customer Prototype Lab monitors social media for various mentions of the Home Energy Report. Most online commentary is dealt with internally, such as making changes to household characteristics. However, on occasion an online comment requires a different level of handling. For instance, an agent in the CPL discovered a negative customer comment on Twitter complaining about the tone of the report wording (see unintentional sarcasm in Report Messaging above). Per Duke Energy protocol, the comment was forwarded to Duke Energy's social media liaison for products, services, and complaints. The liaison responded promptly to apologize to the customer and explain the wording was intended to be complimentary. In a multipart exchange that followed, the liaison addressed the customer's concern, answered a follow-up question, and noted a feature request for an online version of the reports in the future. The incident is mentioned here to demonstrate Duke Energy's overarching efforts to monitor and respond to customer feedback regarding the program in whatever channels customers prefer to use.

Working Relationships

The Program Vendor

The program vendor and Duke Energy have worked together since the vendor was awarded the contract in 2011. The joint program operations team meets weekly via teleconference and uses email and phone calls as necessary, often on a daily basis. The weekly meetings cover feedback from customers, data quality, new system fixes and upgrades, progress on features being worked on, and the current weekly production cycle. Monthly operational meetings review the previous month's entire production cycle. Separate quarterly governance meetings bring together senior management from both organizations to discuss business forecasts and strategic planning, progress toward goals, issues management, and service level performance, including on time delivery, data quality, and print quality.

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[7] Between January 1 – May 15, 2013 Ohio customers viewed the site 826 times for an average of 2:41 minutes. Of these visitors 147 visited more than once, according to a Google Analytics report generated by Duke Energy on May 15, 2013.

Because this program requires billing analysis to determine energy savings, throughout the first year of operations the program has received no feedback about progress toward its energy saving goals. That information will predominantly come from the impact evaluation that will follow this process evaluation. Short of having this information, the program team has focused on enhancing customer experience and improving system functionality to ensure data quality.

Since the program vendor was awarded the contract in 2011, the vendor and Duke Energy have worked closely to engineer a largely automated mechanism for generating more than one million customized energy reports each monthly cycle. With a program as highly customized as MyHER, myriad changes needed to be made to ensure that all the complexities of report generation work smoothly. During the development process and first nine months of full commercial operation, the two companies experienced periodic friction regarding quality control issues and change requests. These came to a head in December of 2012 when they disagreed about the display of the date printed at the top of the monthly reports (Figure 4).
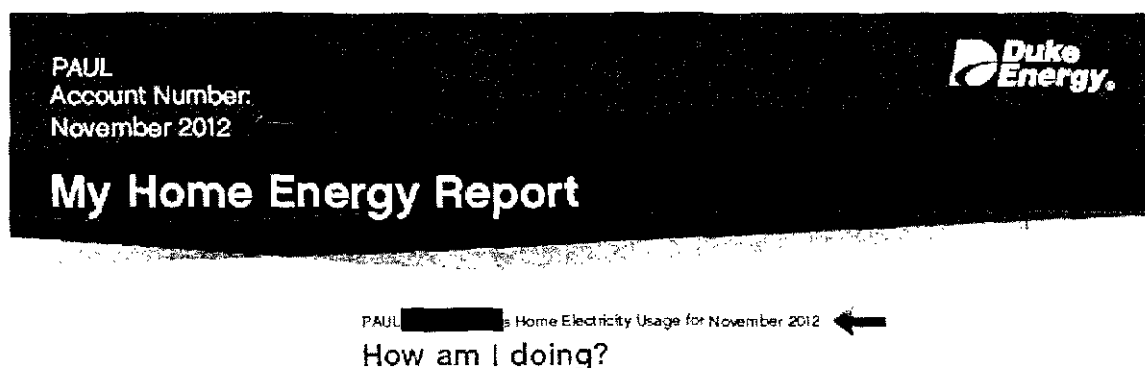
Figure 4. Production Issue Example

Duke Energy's quality assurance measures revealed that the program vendor was generating reports with inconsistent dates for the customer's energy usage on a percentage of reports whose billing periods crossed months (e.g., Nov. 8 – Dec. 5). The problem arose because the program vendor was generating the report month based on the end date of the customer's billing cycle, so the report dates would be consistent with the customer's bill date, rather than creating a monthly header that is consistent across all reports for the monthly cycle as specified by Duke Energy in order to help customers draw a distinction between the bills and the reports. There was a misunderstanding in the business requirements written in the contract that led to this incongruence.

As of March 2013, all members of the team (both Duke Energy and the program vendor) report that day-to-day communications and normal operations are now functioning smoothly and effectively. With time to reflect upon the matter, they have concluded that the difficulties arose because the parties' expectations were not in alignment regarding quality assurance requirements, service level agreements, and business exigencies.

TecMarket Works' investigation finds that this misalignment was likely caused by shifting operational conditions and changes in personnel on both sides. As discussed in the Program

Development section above, the program underwent two significant changes in a matter of months. First came the shift from pilot program to full commercialization using Duke Energy production. Then came the transition from Duke Energy to external operations handled by the program vendor. During approximately this same time frame, Duke Energy shifted program oversight from its new product development group to its ongoing program management team. Likewise, staffing also shifted at the program vendor. These changes in both operating conditions and personnel meant that while the operating agreement between the two companies remained unchanged, its interpretation by the original individuals was not the same as that of their successors on either side.

Those interpretations have since been clarified and worked through on a case-by-case basis. As a result, daily operations are working smoothly and the issue of print quality is on track for successful resolution. Nonetheless, our investigation finds that the potential for future tension lingers and is likely to continue until Duke Energy establishes clearer parameters about the thresholds for data quality, print quality, and customer feedback that will be permitted before fixes and improvements become necessary.

With more than one million reports being generated each month, it is important to carefully consider the scale of the program, the complexity of the change, and the resulting costs and consequences of making that change. Continuous process improvement is fundamental to Duke Energy's brand and business model. Indeed, it is this spirit of innovation and customer focus that makes the utility a standout in the industry. However, it remains commonsensical to ask if it is appropriate to make changes based upon a small number of errors or customer comments. The answer may well and appropriately be yes, but the threshold for change—and the impacts of doing so—should be clearly understood by all parties.

With these parameters in mind, the program team members from both companies will be better assured of enjoying a shared set of expectations and a clear imperative to make the program as effective as possible.

Call Center Vendor
The call center vendor works with Duke Energy to provide call center services for a number of the utility's energy efficiency programs. The MyHER program represents one facet of this larger relationship. All parties indicate that working relationships are positive, professional, and productive.

Customer Prototype Lab
The Customer Prototype Lab is a department within Duke Energy that worked on the pilot program and continues to provide email support for the commercialized version of the MyHER program. As such, members of this group work closely and effectively with their Duke Energy counterparts.

Program Changes Interviewees Would Like to See

Messaging
The program vendor system currently tracks which tips the customer has previously seen and which programs the customer has previously participated in. But the program vendor's software engineers have not yet devised a method for cross-checking whether the tips written by the program vendor and presented on the front page are similar to those written by Duke Energy and shown on the second page. The task is fairly easy for humans who can naturally grasp the degrees of relative similarity or difference between lighting messages, for instance. But it is more complicated for a computer that requires hard coded distinctions. Until this matter is resolved, closely similar messages remain possible. Such an upgrade was said to be on the program improvement to-do list, but it had not risen in priority enough to be implemented yet.

Another challenge involves the ability to deliver two Duke Energy program promotions each month, rather than one as is the norm. Because this functionality was not envisioned from the start, it was not available and could not be swiftly implemented when the opportunity arose in March of 2013. This too is a planned upgrade.

So far the MyHER program's ability to customize messages is based primarily on static household characteristics (age, square footage, location) and program participation data. However, those we interviewed envision even more customization in the future, whereby suggestions are further targeted based upon how efficient customers' homes are compared to their neighbors. "We'd like to be able to suggest buying new equipment when that makes more sense than trying to squeeze more efficiency via lots of efforts with relatively small yields," said one interviewee. Plans to develop models for this were under exploration, but no details were yet available.

Data Transfer
Successful report production depends upon successful data integration and generation. This, in turn, depends upon a highly effective data transfer between Duke Energy's computer system and those at the program vendor. While no specific suggestions for improvement were indicated during our interviews, all parties expressed a general eagerness for these data transfers to be continually refined in an ongoing effort to eliminate errors, reduce processing time, and improve report production capabilities.

Website
Interviewees expressed a desire to increase the level of interactivity on the website to provide more reasons for customers to visit and more opportunities to deepen customer engagement. Examples of potential website additions might include interactive energy saving tips (e.g. click the button to reveal a hidden tip), demonstration videos, and customer testimonials.

Conclusions
The My Home Energy Report program provides Duke Energy residential customers with a meaningful look at their homes' energy use compared to other homes similar to theirs. Overall, the program is well-designed and well-implemented. Participation numbers are largely on target and customer opt outs represent a fraction of one percent of participating customers.

The reports are nicely designed for at-a-glance reading. Data is clearly presented and easily understood. Messages are crisp and actionable. Low call and email volume from customers attests to the above. The top reason why customers reach out is to correct household information, which is understandable given the data's third party origin.

The program vendor platform is not yet as functional or as stable as the team would like. Report production has been hampered by data quality concerns, many of which have arisen as a result of increasing software coding demands to add more functionality. Most data quality items have been caught and fixed prior to mailing. Report delivery meets on time service level agreements. Print quality has been an issue, but recent steps toward resolution promise to be successful.

Call center operations and email support from the Customer Prototype Lab are operating smoothly and those teams interface effectively with the program management team. Duke Energy – the program vendor working relations are operationally functional and productive.

Overall, the program represents a successful contribution to Duke Energy's efficiency portfolio and a model for a well-designed and well run behavior change program for residential customers.

Recommendations for Program Improvements
TecMarket Works presents the following recommendations for improvements.

Clustering

1. The dynamic clustering used to generate the peer groups for energy use comparisons ensures that customers' homes are compared to others that are most closely similar to their own. This method increases the accuracy of the comparisons, but is dynamic in nature and does not allow for customers to remain in one static group over time. However, this upside is offset by the downside of comparing customers to a different group each month, rather than comparing usage to a consistent or static group over time as was done previously when Duke Energy produced the reports. Both methods have their advantages.

   Some members of the Duke Energy team have expressed a concern about the potential for confusion on the part of customers who may not understand why the sizes of their comparison groups are changing each month. That this confusion does not appear to be widespread is evidenced by the fact that the call center vendor and CPL do not have records indicating these concerns in their customer contact databases. However, it remains unclear whether changing customer cluster assignments is influencing customer behavior and thus energy savings.

   RECOMMENDATION: Consider investigating the impact of customers' knowledge of changing cluster sizes on energy savings by removing cluster size information from the monthly reports for a test group of customers to be compared to a control group who receive that information on their reports. This would give additional validity to the notion that customer knowledge of cluster size influences their usage. Alternatively, add an

answer to the MyHER frequently asked questions to explain why cluster sizes change over time and why customers may find themselves compared to different size clusters on different reports.

2. The current minimum cluster size for peer group comparisons has been set by Duke Energy at 10 homes. If a customer's home does not have at least nine other homes that match its characteristics (square footage, age, heat fuel type, location, etc.), then that home does not receive a report. Duke Energy is considering raising the minimum to more than 10 homes, but says the advantages of increasing the cluster size minimum must outweigh the disadvantages of making fewer homes eligible to receive reports.

    One notable advantage of increasing the cluster size is that Duke Energy will be able to demonstrate statistical validity of the comparisons made on the reports. Without a sufficiently large n-size for the comparison group, the average and quartile rankings are subject to a lack of statistical power, and thus the generalizability of the data to the homes in the cluster might be questioned.

    RECOMMENDATION: Consider conducting a longitudinal analysis of existing data (plus or minus one year) to determine whether the energy savings observed from homes in small clusters is similar to energy savings from homes in larger clusters.

Data Presentation

3. Customer energy usage is currently calculated using kWh, but the data is presented by converting that figure to dollars using a rate factor. This decision was made because dollars were considered to be more meaningful to customers than kWh and would thus be more likely to influence energy savings behaviors. Interviewees indicate that Duke Energy is considering switching to kWh. This would provide three advantages: 1) report usage numbers would be similar to bill amounts; 2) kWh numbers would provide a more accurate metric of usage; and 3) presenting kWh would build customer familiarity with the measure as vehicle fuel standards have built familiarity with miles per gallon.

    RECOMMENDATION: Consider including kWh and dollars when presenting monthly and yearly usage comparisons. This option provides the benefits of showing customers actual kWh usage while retaining the familiarity and influence of showing dollar amounts.

Messaging

4. As noted earlier in this document, a small number of customers have complained about interpreting the reports as sarcastic when they read "Nice work. You used X more than the efficient home." The confusion might be eliminated with a simple wording change to something like: "Nice work, you're doing better than the average home! But keep in mind you used X more than the efficient home. So you can still save even more." Such a wording change might help customers to more clearly distinguish between the praise and the encouragement to improve.

RECOMMENDATION: Efforts to reword potentially ambiguous statements on the reports may help mitigate customer misinterpretations.

5. Customers have asked to see on each report an explanation of what the "average" and "efficient" home references represents. Without this, customers do not know what their energy usage is being compared with. The definitions appeared regularly on early iterations of the report, but were removed and transferred to the welcome letter and FAQ section of the website to save space. The customers making this request did not recall the definitions from the welcome letter, so seeking clarification they called the toll-free number rather than visiting the website.

   RECOMMENDATION: While there is insufficient room for all FAQs on the reports, returning an explanation of average and efficient to the report would provide clarity about the report comparisons and preempt the need for such phone calls.

6. The energy saving messages on the front and back of the report are necessarily short, crisp, and simple because space is limited. As a result the advice tends to be directed to readers who are less familiar with the range of energy saving options available to them. Given the goal of maximizing program impacts for a mass audience this approach makes sense, but it comes at the expense of being less engaging to more advanced readers who may already be familiar with the basic information. Fortunately, this need not be an either/or situation, since the reports can be customized to the individual reader. With this in mind, it may be possible to change the software coding, so that customers performing better than average see more advanced tips than those customers performing worse than average. Another possibility for creating an opportunity for extended engagement would be to provide a link to a web page that gives more detailed advice in written form or via video.

   RECOMMENDATION: Whether the specific suggestions noted above are adopted or not we encourage Duke Energy to investigate ways to engage advanced customers on a deeper level in order to derive even more savings.

7. Sending energy reports to customers eight times per year on an ongoing basis presents an inherent challenge to keep the reports interesting to readers. While new monthly energy usage comparisons will always be timely and relevant, the other messages in the report may lead to reader disinterest if they appear to be repetitive. One possible option might be to consider including an energy facts section to the reports, somewhat like the fast facts box used prior to the switch to the two-page format. Such a box could enable Duke Energy to share energy-related trivia and questions to spur reader thinking, such as: "If you added up the size of all the little gaps in your homes windows, doors, floors, and ceiling, how big do think they would be? A. The size of a golf ball. B. The size of a softball. C. The size of a basketball. D. The diameter of a hula hoop. Answer: Every home is different, but a typical home has enough gaps to equal at least the size of a basketball. That's a lot of air moving in and out of your house. Sealing these…".

RECOMMENDATION: Take steps to ensure that energy saving suggestions remain fresh and interesting.

Data Quality

8. Current quality assurance protocols are only spot checking data quality in advance of mailing. Full quality assurance measures are occurring after reports have entered the mail stream and have been sent to customers. This provides no opportunity to catch errors that may not be apparent during spot checks, such as mailing to customers in the control group.

   RECOMMENDATION: Conduct a cost benefit analysis to determine the appropriateness of instituting full quality assurance protocols in advance of mailing.

Overall

9. With a program of this magnitude that involves the generation of more than one million reports each month, it is important to carefully consider the above mentioned recommendations—and any other changes that may be contemplated—in light of the overall the scale of the program, the complexity of the change, and the resulting costs and consequences of making such a change.

   RECOMMENDATION: Consider if it is appropriate to make changes based upon a small number of errors or customer comments. The answer may well and appropriately be yes, but the threshold for change—and the impacts of doing so—should be clearly understood by all parties.

Results From MyHER Customer Surveys

Introduction

TecMarket Works completed telephone surveys with 249 randomly selected program participants in the state of Ohio from mid-February through the end of March, 2013. This section presents the results from the surveys. The survey instrument can be found in Appendix D: MyHER Customer Survey Instrument.

When the customer was successfully contacted, the surveyor asked that customer if they were familiar with the MyHER mailings. If not, the surveyor provided a short description of the MyHER mailings they have been receiving: *This program provided information on how much electricity you used in the previous month and in the previous 12 months compared to your neighbors and provided tips on how you could lower your electricity use and costs in becoming more energy efficient."*

If the customer still did not recall the MyHER, they were thanked for their time and the call was terminated (N=88, or 25.2% of those contacted, did not recall the program reports). If they did recall the MyHER, the survey continued regardless of whether they read the MyHER. There were 261 customers out of 349 contacted (74.8%) who recalled receiving the MyHER report and 249 recipients completed the entire survey (12 incomplete surveys are not included in this report aside from their awareness of MyHER and whether or not they read the reports).

Customers Who Read the MyHER and Why

Almost all of the surveyed customers report that they read the MyHER when they receive it; 95.2% (237 out of 249) of the customers surveyed who remembered receiving the reports are reading them (or in two cases, someone else in the household is reading them). If the full number of contacted customers are included in this calculation (N=349 including partially completed surveys, as noted above), and it is assumed that those who do not remember receiving the MyHER reports, or don't recall reading them, are throwing them away, this brings the percent of customers reading the MyHER down to 70.5% (246[8] out of 349) of the targeted customers. Table 6 below shows the percent of surveyed customers that read the MyHER when they receive it.

Table 6. Customers That Read MyHER

	Count	Percent of total
All customers contacted	349	100.0%
Recalled receiving MyHER	261	74.8%
Customer read MyHER	246	70.5%
Recall receiving but threw MyHER away	15	4.3%
Do not recall receiving MyHER	88	25.2%

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[8] In addition to the 237 out of 249 customers who completed the entire survey, 9 out of 12 of the customers who only partially completed the survey said that they read the MyHER report.

Duke Energy provided recent actual MyHER scores for surveyed customers; most customers who recalled the report read it regardless of their score, as seen in Table 7. However, those whose recent energy usage was "less than the efficient home" were somewhat more likely to throw MyHER away without reading it (8.2% or 5 out of 61, compared to 3.9% or 7 out of 181 among customers whose recent MyHER score was not less than the efficient home; this difference is significant at p<.10 using student's t-test).

Table 7. Customers That Read MyHER by Recent MyHER Score

	Less than efficient home (N=61)	Less than average, but more than efficient home (N=88)	More than average home (N=93)
Read MyHER	91.8%	97.7%	94.6%
Throw MyHER away	8.2%	2.3%	5.4%

Note: seven surveyed recipients do not have recent MyHER scores and are necessarily not included in this table, although these recipients are included in our analysis elsewhere where recency is not a factor.

TecMarket Works next asked customers who read MyHER why they read it. Most customers surveyed (62.9% or 149 out of 237 who read the report) said they read MyHER because they were interested in learning about how their household uses energy, with comparisons to other households (29.1% or 69 out of 237) and learning about saving energy (20.3% or 48 out of 237) being the next most-mentioned responses.

Table 8. Why Customers Read MyHER

	Count	Percent (out of N=237 who read the reports)
Interested in learning how my household uses energy	149	62.9%
Interested in comparison with other households	69	29.1%
Interested in learning more about how to save energy	48	20.3%
It is from Duke Energy	37	15.6%
Avoid increases in power costs or lower rates	25	10.5%
Unique responses (listed below)	15	6.3%
To save money on my energy bills	12	5.1%
To see how my household usage changes over time	9	3.8%
Interested in learning more about climate change or environmental reasons	3	1.3%
For the tips and suggestions	3	1.3%
Don't know / just curious / no reason	3	1.3%
Someone else in the household reads the reports	2	0.8%
Read everything that comes in the mail	1	0.4%
"I only glance at the reports."	1	0.4%

Percentages total to more than 100% because respondents could give multiple responses.

Fifteen recipients gave unique reasons for why they read MyHER, which are listed below.

- *Because I know we can do better, but we have a 100-year-old home.*

- *Because of the pictures and charts.*
- *I am an architect. I look to improve efficiency and track changes after improvements, such as upgrading windows. I share it with my family to encourage them to save money.*
- *I am very energy-conscious.*
- *I get a kick out of reading it.*
- *I had a problem with a huge bill last year and it turned out there was an issue with our furnace. I just open up the report and look at the graph.*
- *I like numbers.*
- *I think it's a great idea.*
- *It contains useful information.*
- *It is beneficial for everyone.*
- *The report looks important.*
- *To keep my house more comfortable.*
- *To see if my insulation is working.*
- *To see if there are any major changes and to be alert to problems.*
- *To see what the focus points are.*

The twelve surveyed customers (4.8% out of 249) who reported that they throw MyHER away provided the following reasons for not reading the report:

- *Too low a priority for me.* (N=4 or 33.3% of 12)
- *I do not care about energy savings or use.* (N=4 or 33.3% of 12)
- *I am already doing the best I can.* (N=3 or 25.0% of 12)
- *I have done all the tips it suggests.* (N=3 or 25.0% of 12)
- *I don't believe it is accurate for my home.* (N=2 or 16.7% of 12)
- *I am too busy/don't have time.* (N=2 or 16.7% of 12)
- *I don't use very much energy.* (N=1 or 8.3% of 12)
- Don't know / not specified (N=1 or 8.3% of 12)
- Other reasons (not specified[9]) (N=5 or 41.7% of 12)

Percentages total to more than 100% because respondents could give multiple responses.

Of the twelve customers surveyed who threw out MyHER, nine (75.0% of 12) said that they did read them at one time, but have since stopped, while two (16.7% of 12) said that they never read the reports, and one (8.3% of 12) was not sure. Of those who used to read the reports, but have stopped, all nine were able to tell us how many reports they read before they stopped; these nine customers read an average of 3.9 reports apiece in the 18 months[10] since the program began, during which time these nine customers received an average of 11.1 Home Energy Reports apiece.

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[9] Due to a programming error, these five respondents were not asked to specify the "other" reasons why they throw the reports away.

[10] Customers in Ohio began receiving MyHER as early as September 2011, and this survey was conducted in February and March of 2013.

Customer Perceptions of Their Efforts Regarding Energy Efficiency

TecMarket Works asked MyHER customers how they thought their efforts to decrease energy consumption compared to what others typically do to save energy, both currently and before joining the MyHER program. The wording of the first question was: *When you consider the efforts you and your household are currently making to decrease your energy consumption at your home, do you feel that on average your efforts are less than what others typically do, about the same as what others typically do, or more than what others typically do?* The results are presented below in Figure 5.

Of customers that read the Home Energy Report, a plurality of nearly half (44.7% or 106 out of 237) believe that they are currently doing more than the average household, while 40.5% (96 out of 237) believe that they do about the same as others do to be more energy efficient. Only 10.5% (25 out of 237) believe that they do less than others, while another 4.2% (10 out of 237) are not sure how they compare to others.

Among the twelve customers surveyed who say that they throw out the Home Energy Report, half (6 out of 12) say they do about the same as others, and the other half (6 out of 12) say they do more than others. These results are not significantly different from the pattern for customers who read the reports.

These results suggest that most customers still believe they are doing the same or more than others with regard to efficiency and few believe they are doing less. Also, customers who believe they are doing more are more likely to read the report. These results also suggest that customers who have participated in another efficiency program will make ideal candidates to receive reports in the future.
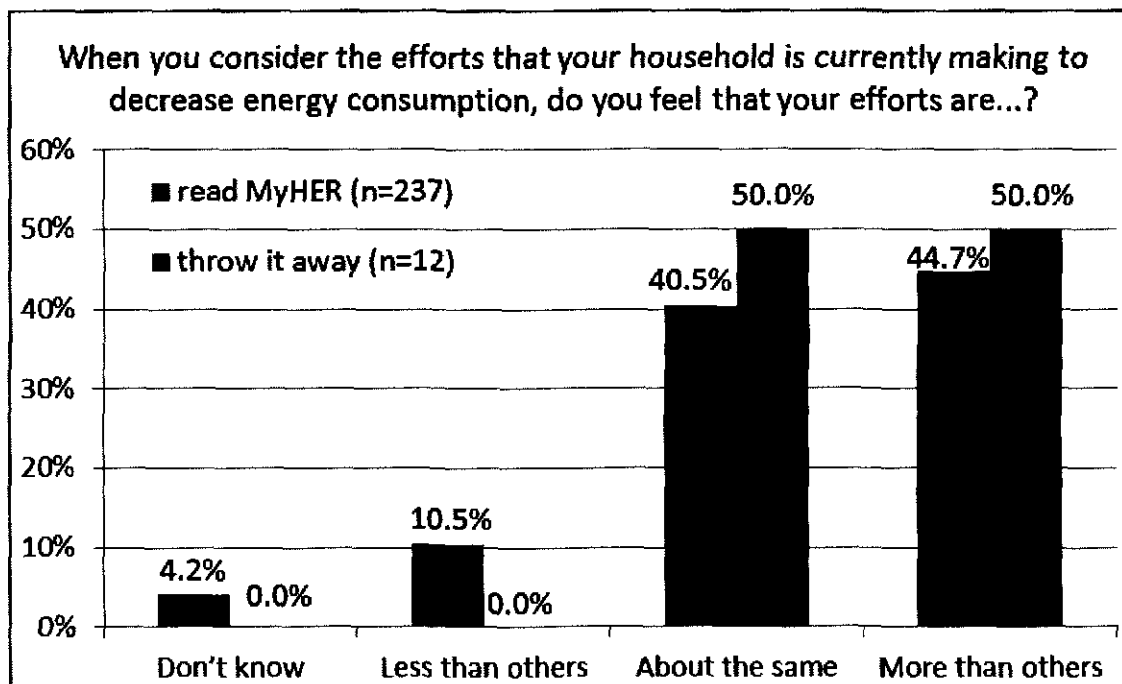
Figure 5. Current Effort to Reduce Energy Consumption Compared to Others

TecMarket Works asked MyHER customers how they thought their efforts to decrease energy consumption before they began receiving the reports compared to what others typically do. The exact wording for this question was: *Now think back to the time before you began receiving the Home Energy Report. At that time, would you say your efforts to decrease energy consumption were less than what others were typically doing, about the same, or more than what others were typically doing?* The results are presented in Figure 6.

Compared to current efforts, surveyed customers who read the Home Energy Report indicated that they were more likely to have been doing "less than others" (16.9% or 40 out of 237) and less likely to have been doing "more than others" (33.8% or 80 out of 237) before receiving the MyHER program. These differences between "current" and "before the program" efforts are significant at p<.05 using student's t-test for customers who read the report.

Among the twelve customers who do not read the reports, there was one customer who said that they did "the same as others" before receiving MyHER, but "more than others" afterwards; the other eleven customers not reading the report all gave the same answer to both of the before and after questions.
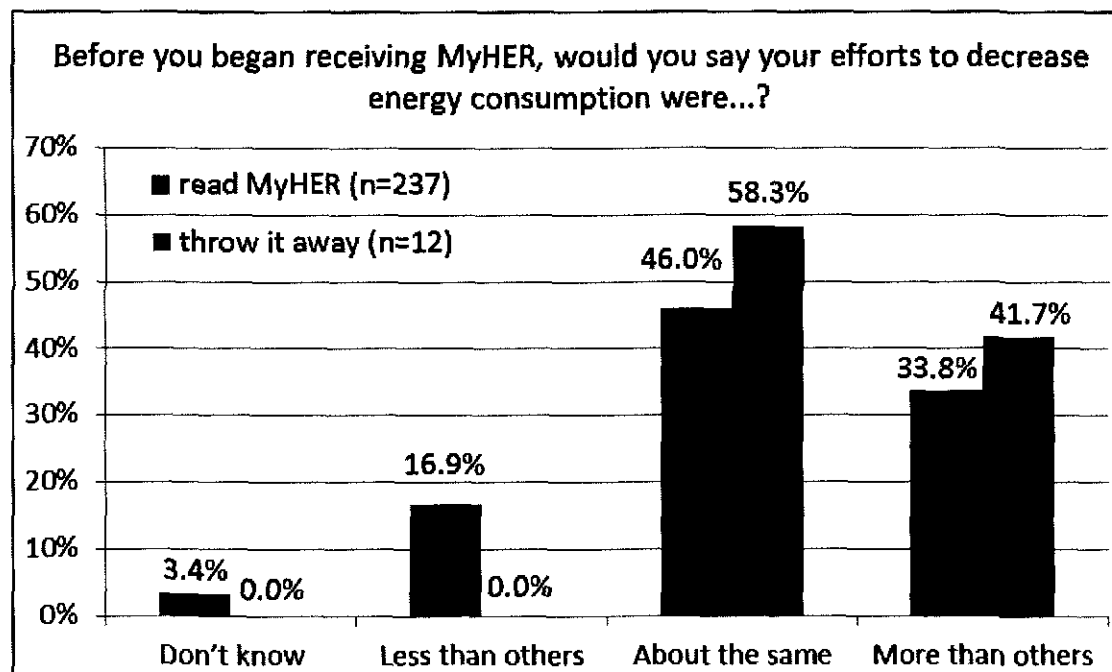
Figure 6. Effort to Reduce Energy Consumption Compared to Others Before MyHER

Finally, TecMarket Works asked MyHER recipients which of four statements best described the difference between their earlier efforts before MyHER and their current efforts after they started to receive MyHER; these responses are shown in Figure 7. More than half of recipients report that they are doing "about the same" as before and after receiving MyHER (51.5% or 122 out of 237 for customers who read the report and 83.3% or 10 out of 12 among those who did not read the report). Most of the remaining customers surveyed report that they either "used to do less and

now do more" or "were already doing more than most, but are doing even more now" (40.9% or 97 out of 237 for customers who read the report and 8.3% or 1 out of 12 among those who did not read the report). Only 14 customers surveyed (5.5% or 13 out of 237 who read the report and 8.3% or 1 out of 12 who don't read the report) said they are doing less now than they were before.

Compared to those who read the reports, customers who throw MyHER away are significantly more likely to say they do "about the same" and significantly less likely to say they "used to do less, but now do more" (both p<.05 using student's t-test).
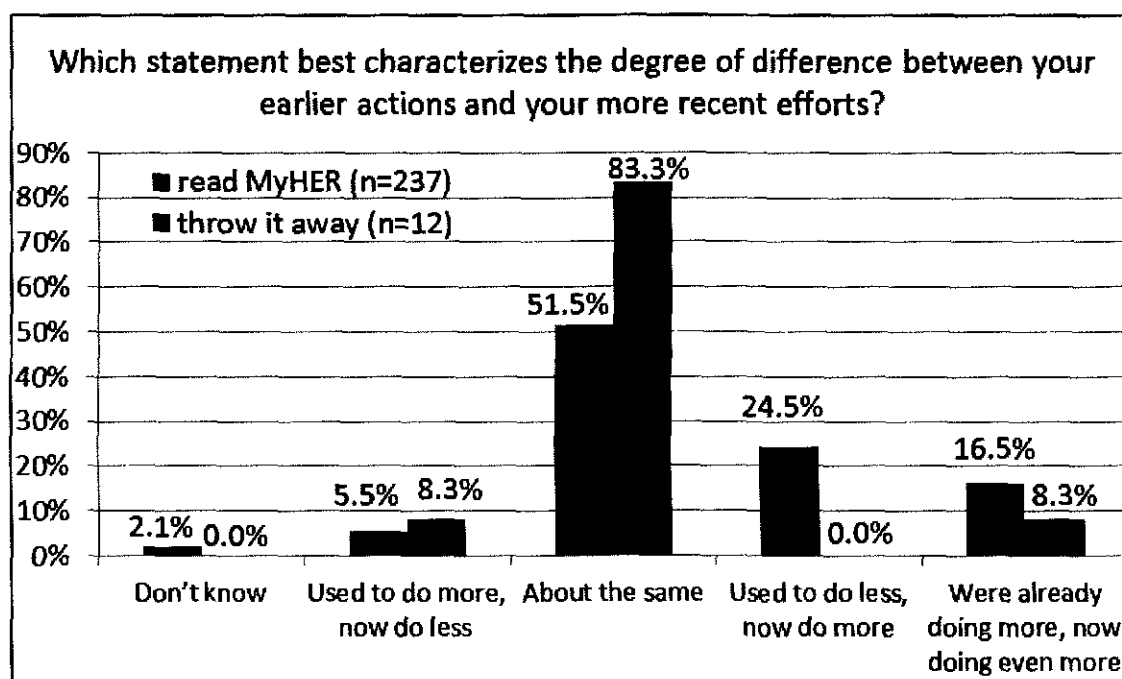
Figure 7. Difference Between Earlier and Current Efforts to Reduce Energy Consumption

Customer Perceptions Compared to Recent MyHER Scores

Duke Energy provided actual recent MyHER scores[11] for surveyed customers, which are used to categorize customers into three groups: those whose energy usage is "less than the efficient home", "less than average, but more than the efficient home", or "more than the average home".[12] These scores can be compared to customer's perceptions of how energy efficient they

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[11] Most of the scores used in this analysis (222 out of 242) are from the February, 2013, MyHER reports; another 10 scores were from December, 2012, or January, 2013, and the remaining 10 scores were the most recent sent, but came from earlier months (May through October, 2012). Since each report is a "snapshot" of energy usage for a particular month, customers' scores may change over time or vary throughout the year. In other words, a customer using less energy than average on their February, 2013, MyHER may not be below average on other reports.

[12] There were seven surveyed MyHER participants for whom the recent MyHER scores were not available; in one case, a report was sent in error (this participant did not have enough comparative homes to calculate an accurate score) and in the other six cases the customers became ineligible for the program after receiving one or more reports (due to changes in billing status, renter status, or their service address did not match their billing address). These seven customers are not included or reported in analyses that show responses categorized by recent MyHER scores.

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are compared to others. As Figure 8 shows, there is some relationship between self-perception and actual performance (as measured by a recent MyHER score), but there are many customers who think they do more than others but actually use more energy than average, or they think their efforts are average when the results are not.

Regardless of actual MyHER scores, very few customers describe their efforts as being "less than others," which is consistent with the theory of social norming (people don't want to be seen as being below the norm). In fact, 51.6% (48 out of 93) of MyHER recipients whose usage was "more than the average home" on their recent report say that they do "about the same as others" and 26.9% (25 out of 93) actually say they do "more than others" for energy efficiency. Even among customers whose recent MyHER scores show their usage is "less than the efficient home," only 62.3% (38 out of 61) believe they are doing "more than others" for energy efficiency.

The differences in self-described energy efficiency efforts between those with "less than efficient" and "less than average, but more than efficient" scores are not statistically significant. Customers with "more than average" recent usage scores are significantly more likely to say they do "about the same" or "less than others" and less likely to say they do "more than others", compared to the two groups that use less than the average home (p<.05 using student's t-test).
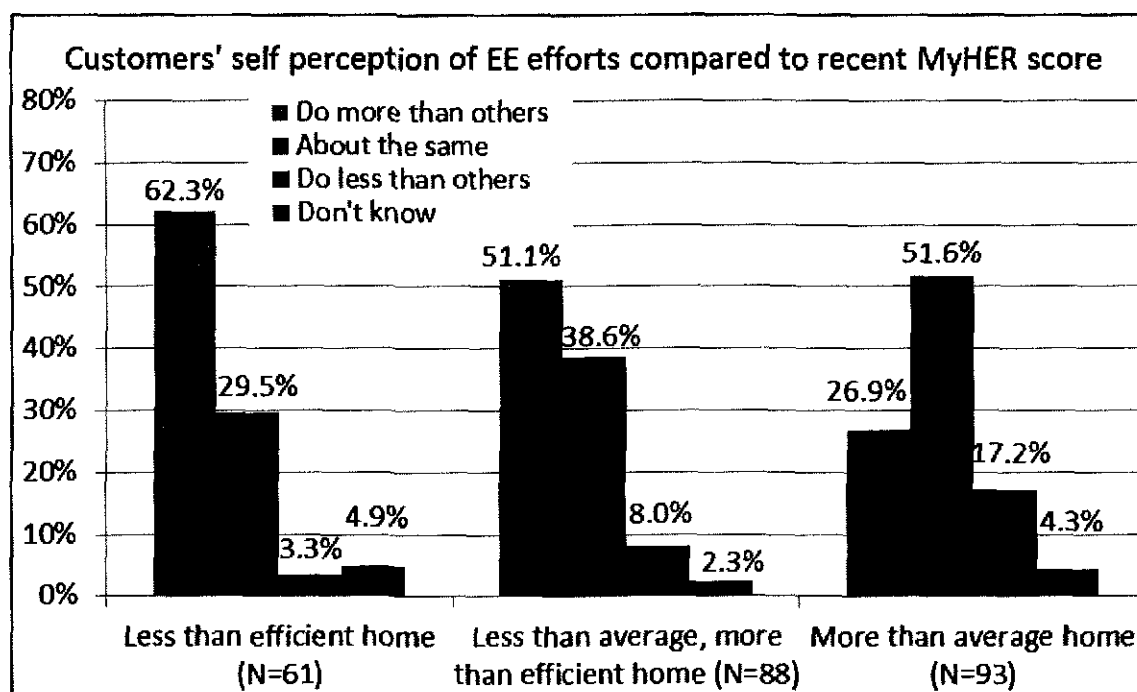
Figure 8. Comparing Customers' Actual Recent MyHER Scores to Self Perception
Note: seven surveyed recipients do not have recent MyHER scores and are not included in this chart.

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What Energy Efficiency Means to Customers

We asked all surveyed customers to define in their own words "what it means to be energy efficient". The responses are categorized below in Table 9. Nearly two-thirds of customers defined energy efficiency to include "using less energy / using the least amount of energy necessary / not wasting energy" (64.7% or 161 out of 249) and about a quarter (22.9% or 57 out of 249) mentioned "saving money / being cost effective / keeping rates down." All other responses were mentioned by fewer than 10% of respondents surveyed. This is very similar to the responses given to this question when it was asked of Ohio HECR[13] customers in 2011: in that study, general "use less energy" responses were given by 65.5% (169 out of 258) of surveyed customers, and 17.1% (44 out of 258) mentioned "saving money" (neither of these figures are significantly different from the current study).

There were two categories of response where the difference between customers who read MyHER and those who don't was statistically significant; those who throw their MyHER away were more likely to mention "insulation / seal doors, windows, and other leaks" (16.7% or 2 out of 12, compared to 3.0% or 7 out of 237 among those who read the reports) and also "try to use less water / don't waste water" (16.7% or 2 out of 12, compared to 1.7% or 4 out of 237 among those who read the reports; both of these differences are significant at p<.05 using student's t-test).

Table 9. In Your Own Words, Please Tell Me What It Means To Be Energy Efficient

	Read MyHER (N=237)	Throw MyHER Away (N=12)	Total (N=249)
Try to use less energy / least amount necessary / don't waste	64.6%	66.7%	64.7%
Saving money on bills / being cost effective / keeping rates down	23.2%	16.7%	22.9%
Helping the environment / sustainability / being green	9.3%	0.0%	8.9%
Being aware of energy use	8.9%	0.0%	8.4%
Turn off lights / appliances when not in use	7.6%	0.0%	7.2%
Heating & cooling decisions / trading comfort for savings	7.2%	0.0%	6.8%
Insulation / seal doors, windows and other leaks	3.0%	16.7%	3.6%
Upgrading home and appliances with efficient equipment	3.0%	0.0%	2.8%
Try to use less water / don't waste	1.7%	16.7%	2.4%
Use CFLs	1.7%	0.0%	1.6%
Make home more comfortable	0.8%	0.0%	0.8%
Conserving / being mindful of hot water usage	0.8%	0.0%	0.8%
Unique responses (listed below)	5.1%	8.3%	5.2%
Don't know	1.3%	0.0%	1.2%

Percentages total to more than 100% because respondents could give multiple responses.

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[13] HECR (Home Energy Comparison Report) was the precursor to the current MyHER program.

Thirteen customers surveyed (5.2% of 249) gave unique responses when asked to define energy efficiency. These responses are listed by subgroup below.

Read MyHER (N=12)

- *Being energy-efficient is about educating children and making a better world.*
- *Being energy-efficient means using the latest technology.*
- *Efficiency is also a safety issue; how many amps your system can handle? Example: using a space heater at 1500W and the circuit breaker not tripping leads to overheating. We have made it a policy to not connect more than one appliance per receptacle. It is important to know the energy demand of various appliances.*
- *I think it's just doing your part to save in your own little area.*
- *It costs a lot.*
- *It means that you take the time to stay current on the newer ideas for conserving energy.*
- *It means that you change your habits and mindset about energy.*
- *Keep up the house.*
- *Less work for Duke.*
- *To get the best out of my energy and be cost effective in the decisions I make to improve my home.*
- *Track your use. Work towards not even needing Duke.*
- *What I'm doing and I'm doing better than others.*

Throw MyHER Away (N=1)

- *It means that you do your research about recent energy-efficient solutions and you implement them in your home.*

Complete responses to this question can be found in Appendix H: What It Means to be Energy Efficient.

Table 10 shows how energy efficiency is defined by customers with different MyHER scores. None of these differences between recent MyHER score groups are statistically significant (at p<.10 using ANOVA).

Table 10. What It Means To Be Energy Efficient by Recent MyHER Score

	Less than efficient home (N=61)	Less than average, but more than efficient (N=88)	More than average home (N=93)
Try to use less energy / least amount necessary / don't waste	62.3%	61.4%	68.8%
Saving money on bills / being cost effective / keeping rates down	23.0%	26.1%	21.5%
Helping the environment / sustainability / being green	9.8%	12.5%	5.4%
Being aware of energy use	6.6%	11.4%	6.5%
Turn off lights / appliances when not in use	6.6%	8.0%	6.5%
Heating & cooling decisions / trading comfort for savings	8.2%	6.8%	5.4%
Insulation / seal doors, windows and	3.3%	4.5%	2.2%

other leaks			
Upgrading home and appliances with efficient equipment	1.6%	2.3%	4.3%
Try to use less water / don't waste	3.3%	1.1%	3.2%
Use CFLs	0.0%	2.3%	2.2%
Make home more comfortable	0.0%	1.1%	1.1%
Conserving / being mindful of hot water usage	1.6%	0.0%	1.1%
Unique responses	8.2%	6.8%	2.2%
Don't know	3.3%	0.0%	1.1%

Percentages total to more than 100% because respondents could give multiple responses.
Note: seven surveyed recipients do not have recent MyHER scores and are not included in this table.

Next, customers where asked what actions they do, or could do, to be more energy efficient. The question was worded *When you think about what you and your household does or can do to decrease energy consumption, what things come to mind?* and was repeated to allow for up to six responses. The full list of responses can be found in Appendix I: What Surveyed Customers Do to be More Energy Efficient.

Only one (0.4% of 252) customer surveyed did not answer the question, saying they are "not doing anything." Another 4.8% (12 out of 249) of customers surveyed only gave one response to this question. However, the majority of participants in the program were able to give three or more responses (75.9% or 189 out of 249), as seen in Figure 9 below.

Energy Efficiency Actions or Measures Taken by Customers: Number of Responses per Participant

5 or more responses, 19.3%

no response, 0.4%
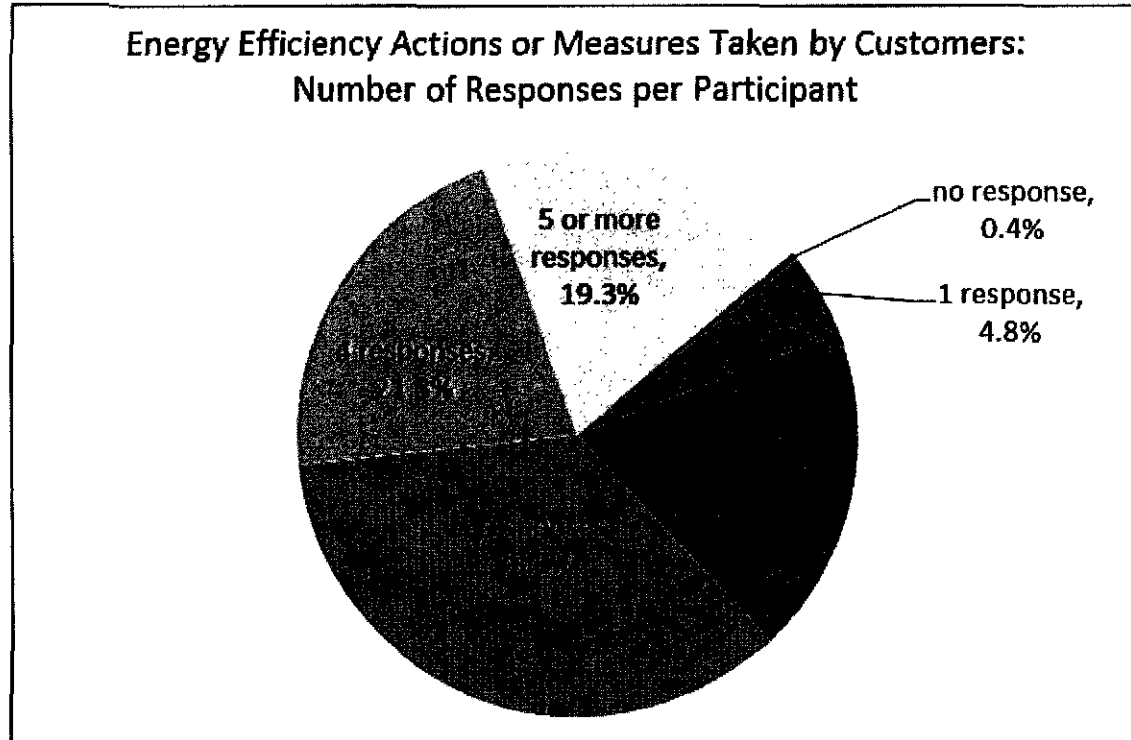
1 response, 4.8%

Figure 9. Number of Practices Energy Efficient Actions or Measures Taken by Surveyed Customers

There were a total of 822 verbatim responses reported by the 249 customers surveyed, which when coded into categories yielded 855 coded responses[14] (a mean of 3.4 per customer surveyed).

Figure 10 shows all categories of response mentioned by at least 5% of customers surveyed, plus mentions of Duke Energy programs and non-responses. Verbatim responses to this question are presented in Appendix I: What Surveyed Customers Do to be More Energy Efficient.

Virtually every survey respondent was able to answer this question; there was just one customer (0.4% of 249) who said they are "doing nothing different" for energy efficiency. The most commonly mentioned responses were "turn off lights when not in use" (45.0% or 112 out of 249), "use less heating"[15] (40.6% or 101 out of 249), "use more efficient light bulbs" (33.3% or 83 out of 249), and "add insulation" and "turn appliances and other items off when not in use" (the latter two both by 28.1% or 70 out of 249).

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[14] Verbatim and coded responses do not correspond exactly because some verbatim responses received multiple codes ("turn off lights and appliances" is coded as two categories of action), and other responses duplicated responses already given by that customer (if someone said they "seal leaks" and "caulk windows" these are both considered actions within the same code category).

[15] This survey was conducted in late winter (February and March), which may account for the much larger number of heating mentions (40.6%) compared to cooling mentions (8.0%).

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A handful of customers surveyed mentioned specific Duke Energy programs; four MyHER recipients (1.6% of 249) mentioned Power Manager and one (0.4% of 249) mentioned participating in Home Energy House Call.

When you think about what you and your household does or can do to decrease energy consumption, what things come to mind?

Turn off lights when not in use	45.0%
Use less heating (turn down thermostat, dress warmly)	40.6%
Use more efficient lightbulbs / CFL, LED	33.3%
Turn items off when not in use / unplug / power strip	28.1%
Add insulation to walls, ceilings, attic	28.1%
Caulk/tape doors, windows / seal leaks	24.9%
Upgrade windows, doors	22.5%
Upgrade to more efficient appliances / Energy Star	17.7%
Upgrade HVAC system	10.0%
Conserving water (other than clothes washing)	10.0%
Use less cooling (turn down or turn off AC)	8.0%
Wash clothes less often / full loads only / cold water	7.2%
Install programmable thermostat	6.4%
Closing off rooms / not using entire house	5.2%
Power Manager	1.6%
Home Energy House Call	0.4%
Doing nothing different	0.4%

Figure 10. What Surveyed Customers Do or Could Do to Save Energy (N=249)
Percentages total to more than 100% because respondents could give multiple responses.

Interest in Energy Efficiency and MyHER

TecMarket Works asked MyHER customers about their interest in energy efficiency and their interest in reading the next Home Energy Report they will receive. Customers were asked to rate their interest on a 10-point scale, with 1 meaning "very uninterested" and 10 meaning "very interested." Mean ratings scores for these questions are shown in Table 11.

Overall, surveyed MyHER customers scored their interest in energy efficiency (8.58) higher than their interest in reading the next MyHER (7.88; significant at p<.05 using student's t-test). This difference is also significant among customers who read MyHER (8.64 for efficiency and 8.05 for reading MyHER, at p<.05 using student's t-test). Customers who don't read MyHER reports rated their interest in energy efficiency at 7.42 (significantly lower than 8.64 for those who do

read MyHER at p<.05 using ANOVA) and their interest in reading MyHER was only 4.18 (significantly lower than for those who read MyHER, and significantly lower than their own interest in energy efficiency, both at p<.05).

Customers who say they do "more than others" are generally the most interested in energy efficiency with an overall mean score of 8.94 (significantly higher than the mean interest in efficiency of those who do "the same as others" and "less than others" at p<.05 using student's t-test). However, there are no significant differences between these groups in terms of interest in reading the next MyHER.

Among customers surveyed who say they do "more than others" and "about the same as others," interest in reading the next Home Energy Report (7.93 and 7.78) was also significantly lower than interest in energy efficiency in general (8.94 and 8.36; both p<.05 using student's t-test). For those who say they do "less than others," interest in the MyHER (8.04) was about the same as interest in energy efficiency in general (8.08).

Table 11. Mean Customer Interest in Energy Efficiency and Reading MyHER

	Interest in Energy Efficiency	Interest in Reading the Next MyHER
All Surveyed Customers		
Read It (N=237)	8.64	8.05
Throw It Away (N=12)	7.42	4.18
Total (N=249)	8.58	7.88
Surveyed Customers Indicating EE Actions are "More Than" Others		
Read It (N=106)	8.97	8.19
Throw It Away (N=6)	8.33	2.40
Total (N=112)	8.94	7.93
Surveyed Customers Indicating EE Actions are "About the Same" as Others		
Read It (N=96)	8.48	7.92
Throw It Away (N=6)	6.50	5.67
Total (N=102)	8.36	7.78
Surveyed Customers Indicating EE Actions are "Less Than" Others		
Read It (N=25)	8.08	8.04
Throw It Away (N=0)	-	-
Total (N=25)	8.08	8.04
Surveyed Customers Indicating EE Action Comparison to Others is "Don't Know"		
Read It (N=10)	8.00	7.80
Throw It Away (N=0)	-	-
Total (N=10)	8.00	7.80

When these ratings of interest are examined by recent MyHER scores, customers who use more energy than the average home have the largest gap between their interest in energy efficiency (8.57) and reading the next MyHER (7.59), although their mean ratings scores do not differ significantly from the other groups shown in Table 12. For all three of these groups, interest in efficiency is significantly higher than interest in reading MyHER (at p<.10 or better using student's t-test).

Table 12. Customer Interest in Energy Efficiency and Reading MyHER by Recent MyHER Score

	Less than efficient home (N=61)	Less than average, but more than efficient home (N=88)	More than average home (N=93)
Interest in energy efficiency	8.69	8.43	8.57
Interest in reading the next MyHER	8.17	8.00	7.59

Note: seven surveyed recipients do not have recent MyHER scores and are not included in this table.

Frequency of Receiving MyHER

Table 13 below presents the preferences of surveyed MyHER customers regarding the frequency in which they receive the MyHER, along with each group's mean interest score (in reading the next MyHER). Overall, more than two-thirds (70.3% or 175 out of 249) of the customers are satisfied with how frequently they currently receive the MyHER[16] and only 2.4% (6 out of 249) say they don't want to receive the reports at all. Among customers who read MyHER, the percentage who want the reports more often (10.1% or 24 out of 237) is not significantly different from the percentage who want them less often (13.9%). Among customers who throw MyHER away, the majority want the reports less often (83.3% or 10 out of 12) and none (0 out of 12) want the reports more often. Customers who want the reports less often (5.8) or not at all (2.3) have significantly lower interest scores for reading the next MyHER compared to those who are satisfied with the current frequency of reports (8.4) or who would prefer the reports more frequently (8.8; differences significant at p<.05 using ANOVA).

In a separate question presented in Table 13, about one-quarter (28.9% or 72 out of 249) of MyHER recipients surveyed said they would prefer reports by email. These customers' interest in reading the next report (7.7) is not significantly different from the interest level of customers who don't want to receive reports by email (7.9).

Table 13. Frequency of Receiving MyHER

Would you prefer to get the reports . . .	Read MyHER (N=237)	Throw it away (N=12)	Total (N=249)
More Frequently	**N=24**	**N=0**	**N=24**
Percent	10.1%	0.0%	9.6%
Interest Score	*8.8*	*-*	*8.8*
Same Frequency	**N=174**	**N=1**	**N=175**
Percent	73.4%	8.3%	70.3%
Interest Score	*8.4*	*9.0*	*8.4*
Less Frequently	**N=33**	**N=10**	**N=43**
Percent	13.9%	83.3%	17.3%
Interest Score	*6.2*	*4.0*	*5.8*
Do not want any	**N=5**	**N=1**	**N=6**
Percent	2.1%	8.3%	2.4%
Interest Score	*2.6*	*1.0*	*2.3*
Don't know	**N=1**	**N=0**	**N=1**
Percent	0.4%	0.0%	0.4%
Interest Score	*10.0*	*-*	*10.0*

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[16] Customers receive MyHER approximately eight times per year.

Prefer Email version	N=68	N=4	N=72
Percent	28.7%	33.3%	28.9%
Interest Score	*7.9*	*5.0*	*7.7*

Of the 43 MyHER customers who would prefer to get the MyHER less frequently (17.3% of 249 customers surveyed), nearly three-quarters (72.1% or 31 out of 43) said they would prefer to receive the reports quarterly and 18.6% (8 out of 43) said they would like to get them annually.

Of the 24 MyHER customers who would prefer to get the MyHER more frequently (9.6% of 249 customers surveyed), the vast majority (87.5% or 21 out of 24) said they would like to receive the reports monthly.

Accuracy of Home Information

Table 14 indicates that more than two-thirds (68.3% or 170 out of 249) of the surveyed customers report that their home information is correct on their Home Energy Report and about a quarter of them (23.3% or 58 out of 249) do not know. This could be because they don't know the age or size of their home[17] or because they don't look at the house data on their MyHER. Only 8.4% (21 out of 249) customers surveyed said there was incorrect information about their home on the report. There are no statistically significant differences between customers who read MyHER or throw it away, or between customers who feel they do more, the same, or less than others.

Table 14. Accuracy of Home Information

Are the home characteristics correct on your report?	Read MyHER		Compared to Others			Overall (N=249)
	Read (N=237)	Throw Away (N=12)	Do More (N=112)	Same (N=102)	Do Less (N=25)	
Correct	68.8%	58.7%	66.1%	72.5%	68.0%	68.3%
Incorrect	8.4%	8.3%	9.8%	5.9%	8.0%	8.4%
Don't Know	22.8%	33.3%	24.1%	20.6%	24.0%	23.3%

Those who "don't know" how they compare to others are not shown in this table.

About one in twelve (8.4% or 21 out of 249) of the surveyed MyHER customers report that there is incorrect information on their mailings. The issues reported by these customers are categorized and listed below: The most common problems reported were incorrect house size (mentioned by 13 of 21), incorrect age of the home (4 out of 21), and incorrect type of heating (4 out of 21). These findings are consistent with the third-party origin of the data used in the reports.

House Size: (N = 11)

- *At first the home's size was listed incorrectly, but this was corrected in a reasonable period of time and is correct on the reports I receive now.*
- *The size is incorrect.*
- *The size is wrong. I am being compared to homes that are bigger than mine.*

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[17] We asked customers later in the survey for the square footage and age of their home; only 3.2% (8 out of 249) of customers surveyed did not know how old their home was and 19.3% (48 out of 249) did not know the square footage. It should also be noted that the age or square footage the respondents gave us may not be correct (some respondents who provided answers may be "guesstimating" and these responses were not checked against other records for accuracy).

- *The square footage is incorrect.*
- *The square footage listed on the report is triple what mine actually is.*
- *The square footage on the report is overestimated by 600 plus feet.*
- *The square footage.*
- *My home is 1,000 feet less than those used for comparison.*
- *Square footage*
- *Square footage is not correct.*
- *Square footage. I think that Duke counts basement space, it's not finished.*

Type of Heating: (N = 4)
- *We use propane along with electricity.*
- *The type of heat used.*
- *I'm not sure if the report shows that I use propane and electric heat.*
- *We installed a geothermal unit three years ago. The reports still show us having our old propane furnace.*

Age of Home: (N = 2)
- *Age. The home is over 70 years old, but has been rehabbed. It is placed with comparables that are much newer.*
- *It seemed like our house is older than other comparables.*

House Size and Age of Home: (N = 2)
- *Both size and age were incorrect.*
- *It says my home is in the range of 1,800 to 2,400 square feet. In reality, it's 1,500. It also says my home was built in 1995, when it's 1895.*

Other inaccuracies: (N = 2)
- *The comparative cost estimate was higher than what I actually used.*
- *The type of home is incorrect. I live in a mobile home, not a frame or brick home.*

Energy Efficiency Scores

The front page of Home Energy Reports present a comparison of monthly energy cost for the customers' households compared to the "average home" and/or the "efficient home". An example of the portion of the report that presents a customer's scores is shown in Figure 11 below. In this example, the customer's energy usage is "more than average", so they are shown both the average and efficient comparison home scores. If a customer's MyHER score is "less than average" (or "less than the efficient home"), then only the efficient home is presented for comparison and the average home is not shown on front of the report.
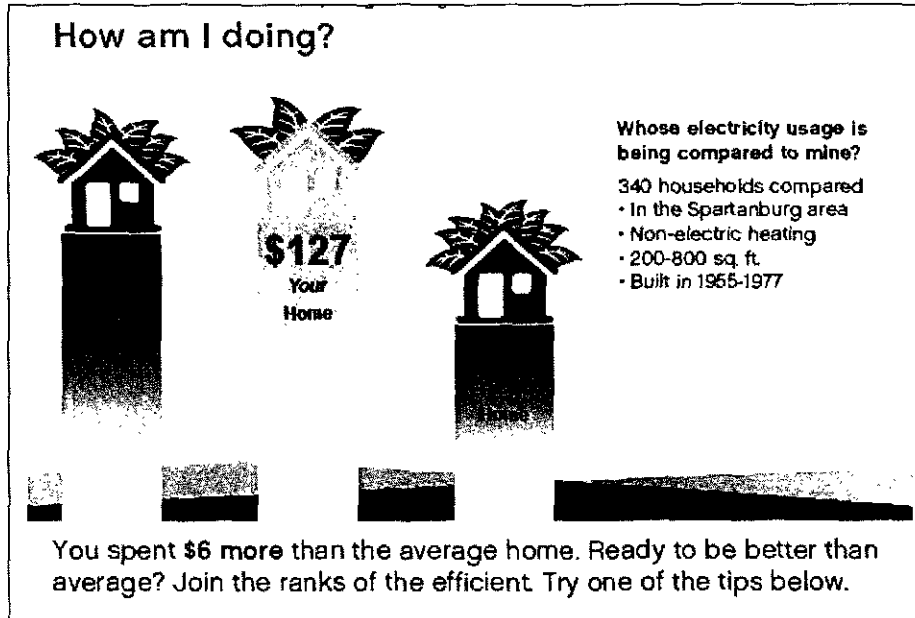
Figure 11. Monthly Energy Use Comparison: Front of MyHER Report

A second comparison chart is currently presented on the back page of the Home Energy Reports, which shows the customer's energy usage for the past 13 months compared to both the average and efficient homes, as seen in Figure 12. Regardless of the customer's recent MyHER score, all report recipients are shown both the efficient and average homes on these annual usage comparison charts.
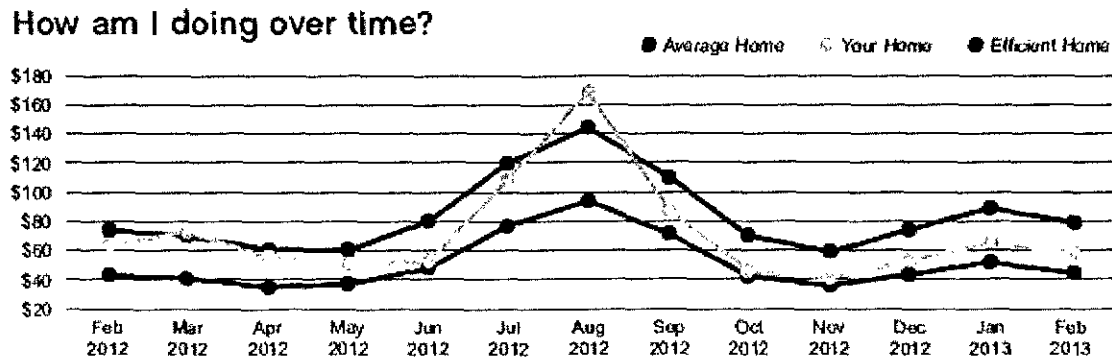
Your usage for this month has **decreased** compared to a year ago. Even though you are doing well, you still spent **$260 more** than efficient homes in your area in the last 12 months.

Figure 12. Annual Energy Use Comparison: Back of MyHER Report

Table 15 shows nearly equal numbers of customers surveyed who say that their Home Energy Report usually shows that they use less energy than the average comparable home (39.0% or 97

out of 249) and those who say that the report shows they use more than the average home (41.0% or 102 out of 249).[18]

Customers who say they do "more than others" for energy efficiency are much more likely to say their report shows their home uses "less than average" (54.5% or 61 out of 112) compared to those who do "about the same" (28.4% or 29 out of 102) and those who do "less than others" (16.0% or 4 out of 25; both of these differences are significant at p<.05 using student's t-test). Customers who say they do "less than others" (64.0% or 16 out of 25) or "about the same as others" (51.0% or 52 out of 102) are also significantly more likely to say that their report shows their home uses more energy than average compared to those who do "more than others" (26.8% or 30 out of 112; differences significant at p<.05 using student's t-test).

Table 15. MyHER Comparison to the Average Home

MyHER usually shows home uses ...	Read MyHER		Compared to Others			Overall (N=249)
	Read (N=237)	Throw Away (N=12)	Do More (N=112)	Same (N=102)	Do Less (N=25)	
Less than average	39.2%	33.3%	54.5%	28.4%	16.0%	39.0%
About average	14.8%	16.7%	13.4%	13.7%	20.0%	14.9%
More than average	41.8%	25.0%	26.8%	51.0%	64.0%	41.0%
Don't know	4.2%	25.0%	5.4%	5.9%	0.0%	5.2%

Those who "don't know" how they compare to others are not shown in this table.

Customers' perception of what their MyHER comparison shows corresponds to their actual recent MyHER scores (though it should be noted that what the recent report shows may not be what their reports "usually" show, since customer scores can change from report to report). A large majority of customers whose reports show their recent usage was "less than the efficient home" say that their reports usually show their usage is "less than average" (77.0% or 47 out of 61), while a large majority of customers whose recent MyHER score showed they use "more than average" say that their reports usually show they use "more than average" (66.7% or 62 out of 93). The differences in distribution in Figure 13 are highly significant (p<.01 for the entire distribution using chi-square). However, there are still a number of customers whose recent scores do not match their perception of their usual scores: 11.5% (7 out of 61) of customers using "less than the efficient home" say their reports usually show their usage is "more than average", while 9.8% (9 out of 93) of customers whose usage was "more than average" according to their recent report say that their reports usually show they use "less than average."

For customers whose recent MyHER score was "less than average, but more than the efficient home," the distribution is nearly equally distributed between those who say their reports usually show they use less electricity than the average home (43.2% or 38 out of 88) and those who say their reports usually show they use more electricity than the average home (36.4% or 32 out of 88). Interestingly, very few customers say that their reports usually show "about average" usage, regardless of their recent MyHER score (overall 14.9% or 37 out of 249, with no significant differences between groups).

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[18] Customers were not asked what their reports usually show "compared to the efficient home". Though not all reports include the average home comparison on the front of the report. Since March 2012 all reports include the average home comparison on the annual usage chart on the back of the report.
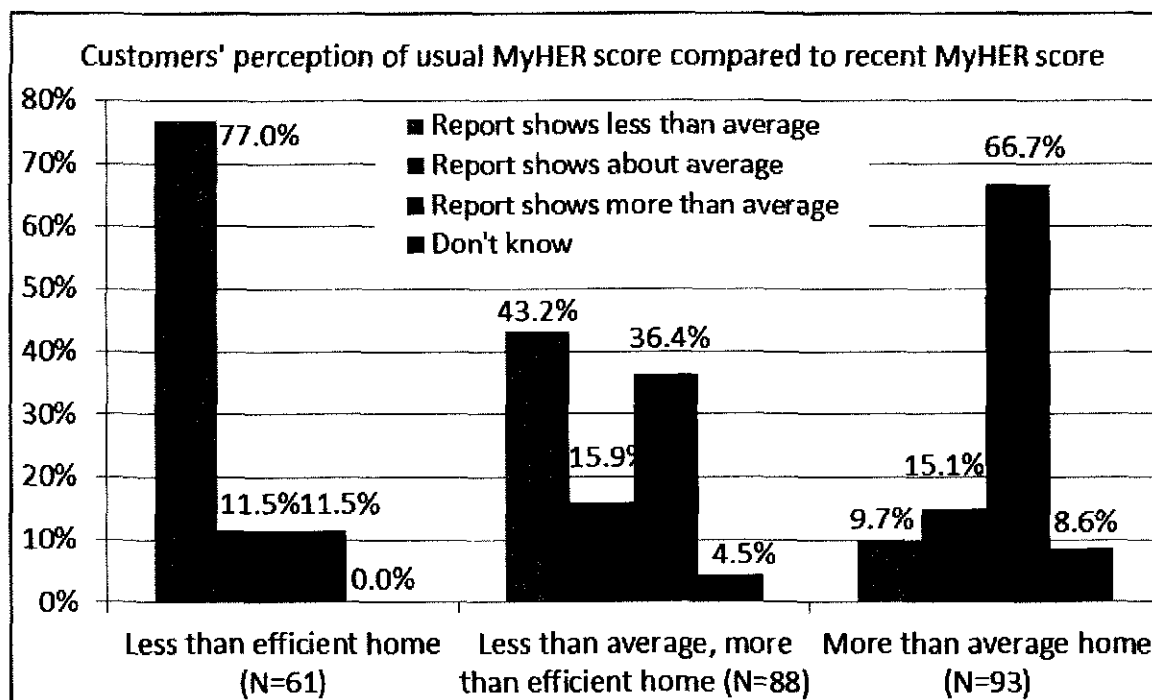
Figure 13. Customer's Perception of Their Usual MyHER Score Compared to Their Actual Recent MyHER Score

Note: seven surveyed recipients do not have recent MyHER scores and are not included in this chart.

Overall, more than half of customers surveyed (62.7% or 156 out of 249) say they use the charts in the Home Energy Report to track their home's energy usage. The percentages of key groups using MyHER in this way are shown in Table 16.

Customers who say they do "more than others" for energy efficiency (68.8% or 77 out of 112) are more likely than those who do the "same as others" to track their usage using MyHER charts (56.9% or 58 out of 102; significant at p<.05 using student's t-test). However, those who do "less than others" (68.0% or 17 out of 25) are just as likely to track their usage with the reports as those who do "more than others."

When comparing actual MyHER scores, customers whose usage was "less than average, but *more than efficient*" on their recent report are the most likely to say they use MyHER to track their usage (70.5% or 62 out of 88) and are significantly more likely to use the reports to track usage compared to those whose energy usage was "more than average" on their recent report (57.0% or 53 out of 93; this difference is significant at p<.05 using student's t-test).

Customers who do not read MyHER reports (25.0%), those who don't know how their energy usage compares to others (40.0%), and those who don't know how MyHER charts compare their home to others (15.4%) are the least likely to use the MyHER charts to track their energy usage (significantly less than most other groups at p<.10 or better using student's t-test).

Table 16. Using MyHER to Track Home Energy Usage

	% who use MyHER charts to track home energy usage
Overall (N=249)	62.7%
Read MyHER reports or throw them away	
Read MyHER (N=237)	64.6%
Throw away MyHER (N=12)	25.0%
Efforts to decrease energy consumption compared to others	
Do more than others (N=112)	68.8%
Do about the same as others (N=102)	56.9%
Do less than others (N=25)	68.0%
Don't know how compare to others (N=10)	40.0%
Usage usually shown on MyHER chart	
MyHER shows home uses less than average (N=97)	63.9%
MyHER shows home uses about the same as the average home (N=37)	67.6%
MyHER shows home uses more than average (N=102)	65.7%
Don't know how MyHER shows comparison to average home (N=13)	15.4%
Recent MyHER Score	
Recent MyHER score: less than efficient home (N=61)	62.3%
Recent MyHER score: less than average, but more than efficient home (N=88)	70.5%
Recent MyHER score: more than average home (N=93)	57.0%
Recent MyHER score: no score available (N=7)	42.9%

As seen in Table 17, a little over half of MyHER customers surveyed (55.0% or 137 out of 249) say they are trying to improve how their energy efficiency compares to their neighbors. Customers who throw away the reports (0.0% of 12) are significantly less likely to be making efforts compared to those who read the reports (57.8% of 237) and those who don't know how their efforts compare to others (20.0% of 10) are significantly less likely to be making efforts compared to those who can, regardless of whether they think their effort is more (58.0% of 112), less (48.0% of 25), or the same as others' (56.9% of 112; all at p<.10 or better using student's t-test).

Customers who don't know what their MyHER report usually shows (15.4% of 13) are significantly less likely to be trying to improve their efficiency compared to those who do know what their report usually shows, whether it is using less than average (52.6% of 97), more than average (62.7% of 102), or "about the same as the average home" (54.1% of 37; all at p<.05 using student's t-test).

When comparing actual MyHER scores, there are no significant differences between groups (even 57.1% of the seven customers without recent MyHER scores are trying to improve how their efficiency compares to others).

Table 17. Trying to Improve How Home Efficiency Compares to Others

	% trying to improve efficiency
Overall (N=249)	55.0%
Read MyHER reports or throw them away	
Read MyHER (N=237)	57.8%
Throw away MyHER (N=12)	0.0%
Efforts to decrease energy consumption compared to others	
Do more than others (N=112)	58.0%
Do about the same as others (N=102)	56.9%
Do less than others (N=25)	48.0%
Don't know how compare to others (N=10)	20.0%
Usage usually shown on MyHER chart	
MyHER shows home uses less than average (N=97)	52.6%
MyHER shows home uses about the same as the average home (N=37)	54.1%
MyHER shows home uses more than average (N=102)	62.7%
Don't know how MyHER shows comparison to average home (N=13)	15.4%
Recent MyHER Score	
Recent MyHER score: less than efficient home (N=61)	50.8%
Recent MyHER score: less than average, but more than efficient (N=88)	58.0%
Recent MyHER score: more than average home (N=93)	54.8%
Recent MyHER score: no score available (N=7)	57.1%

Table 18 shows the mean ratings for satisfaction with aspects of the program and Duke Energy overall according to whether they use the MyHER charts to track their usage and whether they are trying to improve their comparison with others.

The lowest satisfaction ratings for any of these statements is, "the energy saving tips in the report provided new ideas I was not previously considering" at 6.33 overall. The rest of the mean ratings for aspects of the program are between 7.0 and 9.0 overall, except for "the reports are easy to read and understand" which has the highest mean score of any item rated (9.17 overall).

Customers who use the charts and those who are intending to improve their comparison to others give higher satisfaction scores across the board. Most of these differences are statistically significant; those that are significant at p<.10 or better using ANOVA are marked in bold italic text. The two items in this table that show no significant differences between groups are "the reports are easy to read and understand" (the highest-rated item), and overall satisfaction with Duke Energy which is very consistent across these groups (8.09 overall).

Table 18. Satisfaction Scores for Those Who Use Charts to Track Usage and Who Are Trying to Improve Their Comparison to Others

Statement	Use charts to track usage		Trying to improve comparison		Overall
	Yes (N=156)	No (N=88)	Yes (N=137)	No (N=97)	(N=249)
The report's comparisons are reasonable and appropriate.	7.17	7.20	*7.41*	*6.81*	7.18
The report's comparisons are useful.	*7.59*	*6.66*	*7.71*	*6.60*	7.31
The reports are easy to read and understand.	9.24	9.10	9.23	9.05	9.17
The energy saving tips in the report provided new ideas that I was not previously considering.	*6.62*	*5.78*	*6.91*	*5.51*	6.33
I find the reports useful.	*8.45*	*7.18*	*8.63*	*7.04*	8.01
I enjoy receiving and reading the reports.	*8.33*	*7.19*	*8.55*	*6.96*	7.92
I find the graphics helpful in understanding how my energy usage compares to others like me.	*8.88*	*7.93*	*8.79*	*8.16*	8.55
I find the graphics helpful in understanding how my energy usage changes over the seasons.	*9.05*	*7.90*	*8.93*	*8.14*	8.64
Overall I am satisfied with the reports.	*8.93*	*8.30*	*9.01*	*8.26*	8.71
Overall satisfaction with Duke Energy	8.09	8.09	8.04	8.13	8.09

Those who answered "don't know" are only included in the "Overall" column of this table.

Tips and Messages

The series of questions asked of surveyed MyHER customers regarding recalled tips and messages can be found in Appendix D: MyHER Customer Survey Instrument starting on page 121, and begin with question 9. First, TecMarket Works interviewers asked if they recalled any of the tips they read on the MyHER and, if they did, customers were asked which tips they recalled. For all recalled tips and messages (up to three), customers were asked a series of questions about those tips or messages: if their response to the tip or message was favorable, if the tip was believable, if and what they did in response to the tip or message, and how influential the MyHER was in their decision to take the action.

Duke Energy provided TecMarket Works with examples of MyHER mailings and the database of customer contacts; this database included which MyHER mailings customers received and when (by the mail drop date provided). With this information, we determined if the message or tip they recalled was a correct or false recollection of what they actually received. If the recalled tip or message was correct, we calculated how many days passed from the day they received the MyHER with that tip or message to the day that they were surveyed by TecMarket Works.

If a message or tip was sent to a customer on multiple MyHERs, then the days to recall, or days from receiving the MyHER mailing with that MyHER message or tip to the day the customer

was surveyed, is calculated from the most recent MyHER mailing with that message. For example, if the customer received a thermostat tip on a report with a mail drop date of July 2, 2012, and again received a thermostat tip with a mail drop date of August 28, 2012, then was surveyed on March 26, 2013, we count the number of days from the August drop date for the "days to recall" metric, which would be 211 days in this example (instead of 268).

The Difference between Tips and Messages

One important difference between tips and messages is their location on the MyHER: In its current format, two tips are presented on the front page, while from one to three messages are shown on the back page. Tips are customized so that every month customers receive two different tips appropriate to their household, while customers generally receive the same messages from a limited set of messages each month.[19] Additionally, messages are often related to seasonal issues, such as weatherization and daylight savings time, since sets of messages are sent at a particular time of the year, whereas the same set of tips is used throughout the entire year. During the period of the first sixteen reports covered by this evaluation, a total of 23 different tips were sent to customers. These first sixteen reports also included 40 separate messages (from one to five per month, though individual customers do not receive more than three per month). A key to messages and tips can be found in Appendix K: Summary of Tips and Messages. An example of a report provided to TecMarket Works can be found in Appendix E: Example MyHER Mailing.

Recalled Tips and Messages

Surveyed MyHER customers who read the MyHER were asked if they recalled any of the tips or messages on any of the MyHERs they received. Table 19 presents a summary of how many surveyed MyHER customers recalled tips or messages.

The bottom rows in Table 19 present the same metrics as the top rows, but only consider tips and messages that were correctly recalled (and also adds a row for "percentage of tips and messages recalled correctly"). About half of MyHER customers surveyed (52.2% or 130 out of 249) could recall at least one tip or message from MyHER. Among these customers who could recall at least one tip or message, the majority (95.4% or 124 out of 130) recalled something that correctly matched the tips and messages that were sent to them. Overall, 80.6% (228 out of 283) of the tips and messages which were recalled correctly matched tips and messages that were actually sent.

Table 19 also presents the overall mean number of tips or messages recalled and the mean for only those surveyed customers who recalled at least one tip or message. For those who recalled at least one tip or message, the mean number of tips or messages recalled was 2.18 each and the mean number correctly recalled by those making at least one correct recollection was 1.83 each.

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[19] Duke Energy created and delivered Ohio MyHER reports through February, 2012. Beginning March, 2012, the program vendor took over the creation and delivery of the reports. When Duke Energy was running the program, the reports were only one page and included up to three messages (from a set of up to five messages per month) and no tips. Once the program vendor took over running the program, messages were moved to the back of the two-page report (replaced on the front page by two tips) and the same one or two messages were generally sent to all recipients every month for the rest of 2012. Since the October 2012 report, Duke Energy has been working with the program vendor to customize the messages for different customers, similar to the way messages were assigned from a monthly set of messages when Duke Energy was running the program.

MyHER recipients who throw the reports away are less likely to recall any tips or messages (25.0% or 3 out of 12, compared to 53.6% or 127 out of 237 among those who read the reports; this difference is significant at p<.05 using student's t-test). However, among the three recipients who throw MyHER away, but recalled tips or messages anyway, the number and percentage of correctly recalled tips does not differ significantly than the number and percentage of correctly recalled tips among those who do read the reports and could recall a tip or message.

Table 19. Summary of Combined Tips and Messages Recalled

	Read MyHER (N=237)	Throw away MyHER (N=12)	Total (N=249)
Count of Customers Indicating They Recalled Tips or Messages	127	3	130
Percent of Customers Indicating They Recalled Tips or Messages	53.6%	25.0%	52.2%
Total Number of Tips or Messages Recalled	276	7	283
Mean Number of Tips or Messages Recalled (maximum of 3), All Surveyed	1.16	0.58	1.14
Mean Number of Tips or Messages Recalled (maximum of 3), All Surveyed With At Least One Recalled Tip or Message	2.17	2.33	2.18
The Values Below Consider Only Correctly Recalled Tips and Messages			
Count of Customers Recalling At Least One Tip or Message Correctly	121	3	124
Percent of Customers Recalling At Least One Tip or Message Correctly	51.1%	25.0%	49.8%
Total Number of Tips or Messages Recalled Correctly	222	5	227
Percentage of Tips and Messages that were Recalled Correctly	80.4%	71.4%	80.2%
Mean Number of Correctly Recalled Tips or Messages (maximum of 3), All Surveyed	0.94	0.42	0.91
Mean Number of Correctly Recalled Tips or Messages (maximum of 3), All Surveyed With At Least One Correctly Recalled Tip or Message	1.83	1.67	1.83

Comparison: Messages versus Tips

A primary difference between a tip and a message is the location of the statement on the MyHER. Since March of 2012, tips are presented on the front of the report and messages are presented on the back. Additionally, all recipients receive messages from the same set (if not exactly the same messages) in a given month, however the tips they receive on each report are customized for each household every month.[20] For a complete list of messages and tips included in this analysis, please see Appendix K: Summary of Tips and Messages.

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[20] Some messages were exposed to almost all customers (up to 94% or 231 out of 249 for "Know Your Home"), while others were sent to fewer customers (only 6% or 14 out of 249 for the "Insulation" message in February, 2013). The number of recipients who have seen each tip during this same time period ranges from 34% (85 out of 249 for "install and program a programmable thermostat") to a maximum of 75% (187 out of 249 for "cut the standby power used for home entertainment"). The number of customers receiving each recalled tip and message is shown in the lefthand columns of Table 17 and Table 18, and in Table 19 for messages which were not recalled by any surveyed customers.

Table 20 presents the mean number of tips and messages recalled, and the mean number of days to recall that tip or message. Surveyed MyHER customers correctly recalled more messages (0.53 per respondent) than tips (0.39 per respondent) and the mean days to recall was also higher for messages (234 days) than tips (144 days). Part of these differences can be explained by changes made to the MyHER format in 2012. Through to February 2012, reports were only one page and included only messages with no customized tips. Since March of 2012, reports have been two pages long and include two tips on the front and from one to three messages on the back. Thus, customers in the program have had more exposure to messages for a longer time (40 separate messages on up to sixteen reports since the program launched in September 2011), while they have had less exposure to fewer tips for a shorter time (only 23 separate tips on the ten reports since the program vendor took over program implementation in March 2012).

However, unlike customers who read MyHER, those who throw their MyHER away correctly recalled more tips (0.33 per respondent) than messages (0.08).

Table 20. Number of Tips and Messages Correctly Recalled

	Read MyHER (N=237)	Throw away MyHER (N=12)	Total (N=249)
Number of Correctly Recalled Tips	92	4	96
Mean Number of Tips per Customer	0.39	0.33	0.39
Number of Correctly Recalled Messages	130	1	131
Mean Number of Messages per Customer	0.55	0.08	0.53
Mean Days of Recall: Tips	145	122	144
Mean Days of Recall: Messages	232	510	234

The tables below present all of the correctly recalled tips and messages, the number of surveyed customers recalling the tip or message, how many of them responded favorably to the tip or message, how many found the tips and messages believable, and finally, how many of them took action based on the tip or message along with the influence of the MyHER on their decision to take the action. The Influence Score was determined by calculating the mean response to the following: *Please indicate how influential the Home Energy Report was to your decision to take this action using a 1 to 10 scale with 1 meaning the report had no influence and you would have taken this action on your own, and 10 meaning that the report was very influential and that you would not have taken this action on your own without reading the tip on the Report.*

Table 21 presents all the recalled tips in one table, combining all counts and averaging the favorability scores of all responses for each tip. The most commonly recalled tips are "use energy efficient lighting indoors" (33 recipients), "weatherize your home" (17 recipients), "insulate your attic" (11 recipients), and "use efficient bulbs for your outdoor lighting" (8 recipients). The most frequently recalled tips from MyHER reports generally correspond to customers' definitions of energy efficiency shown in Figure 10 (lighting gets the most mentions, with insulation and weatherization and "turning things off" among the next most mentioned). Out of the 23 different tips customers received, five were not recalled by anybody in this survey;

these are "put outdoor lights on motion detectors or timers," "unplug your second refrigerator," air dry your laundry," "use task lighting," and "minimize the runtime of your dryer".

Customers surveyed found most of the tips to be believable and gave them high favorability scores. However, the mean favorability rating for "use energy efficient lighting indoors" at 6.8 on a 10-point scale is lower than any of the other tips recalled (significantly lower than 8.6 for "weatherize your home" at $p<.05$ using student's t-test; sample sizes are too small for any other differences to be significant). Fewer customers found this message to be believable (76% or 25 out of 33; this is significantly lower than 100% for the next two tips listed at $p<.05$ using student's t-test) and those who followed the "use energy efficient lighting indoors" tip were also significantly less likely to be satisfied with the results (only 54% or 14 out of 26 were satisfied; this is significantly lower than for the other three tips which were recalled by at least 5% of customers surveyed, all of which had 100% satisfaction rates).

Most of the recalled tips led to customers taking action, or at least planning to take action, in the future. Among tips that were recalled by more than 2% of customers receiving those tips, the lowest percent taking action was for "insulate your attic" at 45% (5 out of 11), though another 36% (4 out of 11) said they still intend to take this action in the future. The highest rates of taking action are for "use energy efficient lighting indoors" (79% or 26 out of 33) and "cut standby power to your home computing system" (86% or 6 out of 7).

The amount of time to recall these tips ranged from 9 days to more than eight months, with the top three most frequently recalled tips having been recalled on average from 143 to 182 days after the reports containing those tips were sent.

Twenty of the 23 tips sent were recalled by fewer than 10 survey respondents apiece, which is not a large enough sample for significance testing. Differences between tips in terms of ratings and actions should be considered directional indicators, not statistically significant findings.

Table 21. All Recalled Tips

Recalled Tip (Number of Respondents Receiving)	Number of Recalls for This Tip (percent recalling)	Average Favor-ability Score	Number Finding It Believable (percent yes)	Number of Customers Taking Action (percent yes)	Satisfied With Results (percent of those taking action)	Customers Planning to Take Action (percent of those recalling)	Average Days to Recall
Use energy efficient lighting indoors (N=175)	33 (19%)	6.8	25 (76%)	26 (79%)	14 (54%)	1 (3%)	152
Weatherize your home (N=162)	17 (10%)	8.6	17 (100%)	10 (59%)	10 (100%)	1 (6%)	182
Insulate your attic (N=158)	11 (7%)	8.9	11 (100%)	5 (45%)	5 (100%)	4 (36%)	143
Use efficient bulbs for your outdoor lighting (N=175)	8 (5%)	8.4	7 (88%)	4 (50%)	4 (100%)	1 (13%)	63
Cut standby power to your home computing system (N=174)	7 (4%)	9.0	7 (100%)	6 (86%)	5 (83%)	0 (0%)	122

TecMarket Works Evaluation Findings

Recalled Tip (Number of Respondents Receiving)	Number of Recalls for This Tip (percent recalling)	Average Favorability Score	Number Finding It Believable (percent yes)	Number of Customers Taking Action (percent yes)	Satisfied With Results (percent of those taking action)	Customers Planning to Take Action (percent of those recalling)	Average Days to Recall
Install and program a programmable thermostat (N=85)	3 (4%)	9.0	3 (100%)	3 (100%)	2 (67%)	0 (NA)	245
Buy an Energy Star refrigerator (N=165)	4 * (2%)	6.8	4 (100%)	1 (25%)	1 (100%)	1 (25%)	70
Buy an Energy Star television (N=185)	3 * (2%)	8.5	3 (100%)	2 (67%)	2 (100%)	0 (0%)	31
Replace your windows with low-E Energy Star windows (N=127)	2 (2%)	7.5	2 (100%)	1 (50%)	1 (100%)	0 (0%)	261
Insulate electrical outlets and switch cover plates (N=170)	2 (1%)	8.5	1 (50%)	1 (50%)	1 (100%)	0 (0%)	89
Turn off outdoor lights during the day (N=158)	1 (1%)	10.0	1 (100%)	1 (100%)	0 (0%)	0 (NA)	62
Buy an Energy Star dehumidifier (N=170)	1 (1%)	10.0	1 (100%)	0 (0%)	NA	1 (100%)	182
Cut the standby power used for home entertainment (N=187)	1 (1%)	10.0	1 (100%)	1 (100%)	0 (0%)	0 (NA)	251
Use your microwave instead of a conventional oven (N=166)	1 (1%)	10.0	1 (100%)	1 (100%)	1 (100%)	0 (NA)	125
Enable energy management on your computer (N=165)	1 (1%)	10.0	1 (100%)	0 (0%)	NA	1 (100%)	71
Buy an Energy Star dishwasher (N=174)	1 (1%)	8.0	1 (100%)	1 (100%)	0 (0%)	0 (NA)	9
Save on hot water use (N=124)	1 (1%)	10.0	1 (100%)	1 (100%)	1 (100%)	0 (NA)	198
Replace your old hot water heater (N=159)	1 (1%)	10.0	1 (100%)	0 (0%)	NA	0 (0%)	119
Put your outdoor lights on motion detectors or timers (N=160)	0 (0%)	NA	NA	NA	NA	NA	NA
Unplug your second refrigerator or freezer (N=166)	0 (0%)	NA	NA	NA	NA	NA	NA
Air dry your laundry (N=173)	0 (0%)	NA	NA	NA	NA	NA	NA
Use task lighting (N=172)	0 (0%)	NA	NA	NA	NA	NA	NA
Minimize the run time of your dryer (N=182)	0 (0%)	NA	NA	NA	NA	NA	NA

* Two customers received the "Energy Star refrigerator" and "Energy Star television" tips on the same report, thus both tips match their recollection to "buy efficient appliances" and these two customers are counted as recalling both tips.[21]
Note: If a customer already took action based on a tip, they were not asked if they planned to take action based on that tip in the future (thus "NA" for the percent planning to take action for tips where 100% of customers already took action).

Table 22 presents all of the messages which were recalled by surveyed customers, with the most recently recalled messages at the top. Messages which were sent, but not recalled by any surveyed customers are listed separately in Table 23. And, the complete lists of both tips and messages by month can be found in Appendix K: Summary of Tips and Messages. Of the 40 messages sent to customers in Ohio since the beginning of the MyHER program, only half were recalled by any surveyed respondents. The most frequently recalled report messages are "Twist" (43 recipients or 28% of 151 who received this message) and "Free CFLs" (13 recipients or 24% of 54), which both have to do with CFL bulbs and were sent to customers about three months before this survey was conducted. The message "Insulation" from February, 2013, reports also had a high recall rate, although very few customers received this message (recalled by 21% or 3 out of 14). Out of 131 messages recalled by customers, about one-third (33.6% or 44 of 131) of these messages were sent on reports more than a year before this survey was conducted (i.e., messages from before the program vendor became involved in program implementation).

Recalled messages are generally seen as believable (for every message recalled by two or more respondents, a clear majority who recalled the message said it was believable). Most messages also led customers to take action based on the message. Among messages which were recalled by at least three respondents, all but two led to the majority of recalling customers taking action. The two messages for which the majority of recalling customers did not take action are "Walls" (by 37.5% or 3 out of 8 recalling this message) and "Shrink Wrap" (by 33.3% or 1 out of 3); though in the case of "Walls," another 37.5% (3 out of 8) respondents still intend to take action on this message in the future. The majority of customers who took action on messages were also satisfied with the results of these actions; the lowest rate of satisfaction was for the "Twist" message at 58.3% (21 out of 36).

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[21] When a customer's recollection matched more than one tip or more than one message, only the most recently received tip or message was considered a match (in order to avoid double-counting). In addition, some customers recalled "energy efficient appliances" without specifying a particular appliance. There were four MyHER tips related to specific energy efficient appliances: refrigerators; dishwashers; dehumidifiers; and televisions. In these cases, the customer recollection could be said to match all four of the appliance-related tips. Therefore, in order to avoid counting a recollection more than once, only the most recently received tip was considered a match. However, there were two customers surveyed who received the tips about refrigerators and televisions on the same report; since these tips arrived at the same time, they are both considered a match (this is the only case where recalled tips are double-counted). Actions taken for each tip matched can be found in Appendix I: List of Self-Reported Energy Efficiency Actions.

Table 22. All Recalled Messages

Recalled Message (Number of Respondents Receiving)	Number of Recalls for This Message (percent recalling)	Average Favor-ability Score	Number Finding It Believable (percent yes)	Number of Customers Taking Action (percent yes)	Satisfied With Results (percent of those taking action)	Customers Planning to Take Action (percent of those recalling)	Average Days to Recall
Insulation Feb 2013 (N=14)	3 (21%)	8.3	3 (100%)	3 (100%)	2 (67%)	0 (NA)	9
HEHC Feb 2013 (N=208)	1 (0.5%)	10.0	1 (100%)	1 (100%)	0 (0%)	0 (NA)	20
Power Manager Jan 2013 (N=185)	1 (0.5%)	3.0	1 (100%)	0 (0%)	NA	0 (0%)	47
Hugs for Heaters Dec 2012[22] (N=197)	11 (6%)	7.7	10 (91%)	6 (55%)	4 (67%)	2 (18%)	73
Free CFL Oct 2012 (N=54)	13 (24%)	6.7	9 (69%)	9 (69%)	6 (67%)	0 (0%)	107
Twist Oct 2012 (N=153)	43 (28%)	7.5	37 (86%)	36 (84%)	21 (58%)	2 (5%)	109
Back to School Aug 2012 (N=231)	14 (6%)	8.1	13 (93%)	12 (86%)	9 (75%)	0 (0%)	190
Smart Saver May 2012 (N=172)	1 (1%)	3.0	1 (100%)	0 (0%)	NA	0 (0%)	283
Smoke Detector Jan 2012 (N=98)	3 (3%)	9.0	3 (100%)	3 (100%)	3 (100%)	0 (NA)	385
Water Heater Jan 2012 (N=98)	1 (1%)	5.0	0 (0%)	0 (0%)	NA	0 (0%)	417
Hugs for Heaters Dec 2011 (N=200)	4 (2%)	8.3	4 (100%)	3 (75%)	3 (100%)	0 (0%)	429
Thermostat Wars Dec 2011 (N=200)	1 (0.5%)	10.0	1 (100%)	1 (100%)	1 (100%)	0 (NA)	453
Walls Nov 2011 (N=201)	8 (4%)	8.0	8 (100%)	3 (38%)	3 (100%)	3 (38%)	463
Chimney Nov 2011 (N=201)	1 (0.5%)	10.0	1 (100%)	1 (100%)	1 (100%)	0 (NA)	474
Shrink Wrap Nov 2011 (N=201)	3 (1%)	6.3	3 (100%)	1 (33%)	1 (100%)	0 (0%)	464
Vampires Oct 2011 (N=201)	16 (8%)	8.1	15 (94%)	12 (75%)	9 (75%)	0 (0%)	490
Football Oct 2011 (N=85)	1 (1%)	10.0	1 (100%)	0 (0%)	NA	0 (0%)	521
CFL Oct 2011 (N=55)	2 (4%)	4.0	2 (100%)	1 (50%)	1 (100%)	0 (0%)	503

[22] The message "Hugs for Heaters" was sent on both the December 2011, and December 2012, reports, but is reported as two separate messages. If a customer recollection matched this message, and they had received both versions, only the most recent (2012) was considered a match. Customers whose recollections were matched to the 2011 message did not receive the 2012 version of this message.

TecMarket Works   Evaluation Findings

Recalled Message (Number of Respondents Receiving)	Number of Recalls for This Message (percent recalling)	Average Favor-ability Score	Number Finding It Believable (percent yes)	Number of Customers Taking Action (percent yes)	Satisfied With Results (percent of those taking action)	Customers Planning to Take Action (percent of those recalling)	Average Days to Recall
CFL Over Sep 2011 (N=33)	2 (6%)	9.0	2 (100%)	1 (50%)	0 (0%)	0 (0%)	529
CFL Under Sep 2011 (N=52)	2 (4%)	7.5	2 (100%)	2 (100%)	2 (100%)	0 (NA)	530

Notes: If a customer already took action based on a message, they were not asked if they planned to take action based on that message in the future (thus "NA" for the percent planning to take action for messages where 100% of customers already took action).

About half of the messages sent to customers since the MyHER program began in Ohio were not recalled by any customers in this survey; these messages are listed below in Table 23.

Table 23. All Messages Not Recalled

Messages Not Recalled	Number of Respondents Receiving	Month of Report
Room to Breathe	N=222	February 2013
Screen Savers	N=230	January 2013
Videos	N=45	January 2013
Go Green	N=197	December 2012
Dirty Laundry	N=207	October 2012
Drafts	N=84	September 2012
Winter Magic	N=84	September 2012
Know Your Home	N=233	July 2012
Vacation	N=143	June 2012
Home Energy House Call	N=143	June 2012
Spring Cleaning	N=172	May 2012
Intro / Earth Day	N=156	March 2012
Transition	N=201	January 2012 & February 2012
Microwave	N=98	January 2012
Coffee Maker	N=200	December 2011
Registers	N=201	October 2011
School	N=61	October 2011
School	N=85	September 2011
Cold Water	N=85	September 2011

If customers said a tip or message they recalled was "not believable," they were asked why. These verbatim responses are listed below for customers who found tips or messages to be "not believable." Overall, there were only six cases where a tip was "not believable" (plus four cases where a customer was not sure if a tip was believable, though these customers were not asked to explain why this was so) and eight cases where a message was deemed "not believable" (plus six cases where customers were not sure if a message was believable). Most of these comments are about CFL light bulbs.

Why tips were not believable

Use energy efficient lighting indoors (N=5)
- *We had already installed CFLs before getting this tip and had not noticed a big difference in our bill.*
- *They don't last as long as they say.*
- *We don't leave lights on in the household.*
- *I just can't believe it would lower my bill; it's already too high.*
- *I don't like them.*

Use efficient bulbs for your outdoor lighting (N=1)
- *I don't believe the CFLs work as well as everyone thinks. They don't last as long as people say and there is a problem with HAZMAT issues.*

Why messages were not believable[23]

Twist (N=5)
- *They don't last as long as they say.*
- *We already had CFLs in 90 percent of our lights.*
- *I just can't believe it would lower my bill; it's already too high.*
- *I don't like them.*
- *The amount of energy savings from using CFLs seems negligible.*

Free CFL (N=1)
- *I don't believe the CFLs work as well as everyone thinks. They don't last as long as people say and there is a problem with HAZMAT issues.*

Water Heater (N=1)
- *It just wasn't believable.*

Vampires (N=1)
- *The amount of potential energy savings are outweighed by the inconvenience of having to plug and unplug all those items.*

Influence of MyHER Tips and Messages on Actions Taken
Customers who took action based on a tip or message were asked to rate the influence of the MyHER program on their action using a 10-point scale, where "10" means "very influential." Overall, among the 62 actions taken based on tips the average rating of influence was 5.91, while for the 93 actions taken based on messages, the average rating of influence was 6.26. The mean influence ratings for all tips and messages for which customers took action are shown below in Figure 14 and Figure 15.

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[23] Note that survey respondents sometimes used the same explanation about the believability of tips and messages and thus are reflected here with similar wording to the comments shown above.

Mean Influence ratings of tips on actions taken

Use your microwave instead of a conventional oven (N=1) — 10.0
Turn off outdoor lights during the day (N=1) — 10.0
Save on hot water use (N=1) — 10.0
Turn off outdoor lights during the day (N=1) — 10.0
Cut standby power to your home computing system (N=6) — 7.7
Weatherize your home (N=7) — 7.4
Cut standby power used for home entertainment (N=1) — 7.0
Use energy efficient lighting indoors (N=26) — 6.1
Use efficient bulbs for your outdoor lighting (N=4) — 5.0
Install and program a programmable thermostat (N=3) — 5.0
Buy an Energy Star refrigerator (N=1) — 5.0
Buy an Energy Star television (N=2) — 3.0
Insulate your attic (N=2) — 2.8
Insulate electrical outlets and switch covers (N=1) — 1.0
Buy an Energy Star dishwasher (N=1) — 1.0
Replace windows with Energy Star windows (N=1) — 1.0

Figure 14. Mean Influence Ratings of Tips on Actions Taken

Mean Influence ratings of messages on actions taken

Hugs for Heaters - Dec 2011 (N=3) — 10.0
Home Energy House Call (N=1) — 10.0
Shrink Wrap (N=1) — 9.0
Vampires (N=12) — 7.8
Smoke Detector (N=3) — 7.3
Hugs for Heaters - Dec 2012 (N=6) — 6.6
Twist (N=34) — 6.3
Free CFL (N=9) — 6.1
CFL Under (N=2) — 6.0
Back to School (N=12) — 5.4
Thermostat Wars (N=1) — 5.0
Chimney (N=1) — 4.0
Walls (N=3) — 3.5
Insulation (N=3) — 3.3
CFL (N=1) — 2.0
CFL Over (N=1) — 1.0
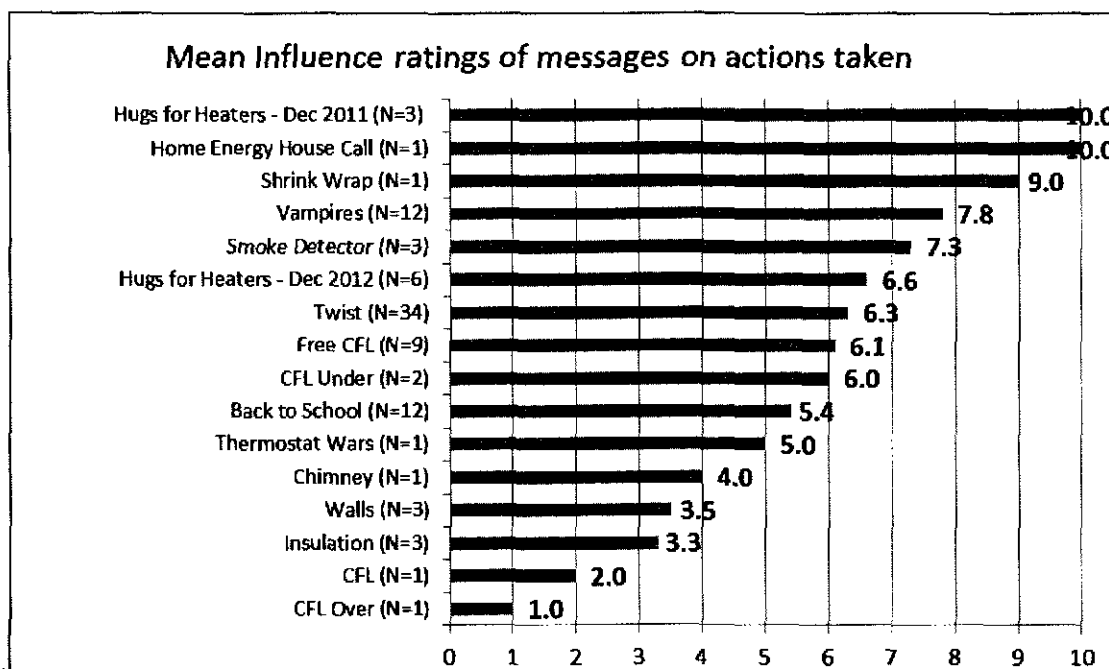
Figure 15. Mean Influence Ratings of Messages on Actions Taken

Tip and Message Relevance

Surveyed MyHER recipients were asked if they felt that the tips included on the report were relevant and applied to their household. These results are shown in Table 24. Overall, 70.7% (176 out of 249) of customers felt that the tips are relevant and apply to their households. Specific subgroups who are significantly less likely to feel the tips are relevant and applicable

include those who throw away the reports (8.3% or 1 out of 12) and those who don't know what their MyHER usually shows in comparison to other households (30.8% or 4 out of 13; these groups are significantly different from the others at p<.05 using student's t-test). However, there was little difference between groups based on their actual, recent MyHER scores.

Table 24. Relevance and Applicability of Tips for Customers' Households

	% who feel tips are relevant and apply to household
Overall (N=249)	70.7%
Read MyHER reports or throw them away	
Read MyHER (N=237)	73.8%
Throw away MyHER (N=12)	8.3%
Efforts to decrease energy consumption compared to others	
Do more than others (N=112)	71.4%
Do about the same as others (N=102)	69.6%
Do less than others (N=25)	76.0%
Don't know how compare to others (N=10)	60.0%
Usage usually shown on MyHER chart	
MyHER shows home uses less than average (N=97)	73.2%
MyHER shows home uses about the same as the average home (N=37)	67.6%
MyHER shows home uses more than average (N=102)	74.5%
Don't know how MyHER shows comparison to average home (N=13)	30.8%
Recent MyHER Score	
Recent MyHER score: less than efficient home (N=61)	70.5%
Recent MyHER score: less than average, but more than efficient (N=88)	75.0%
Recent MyHER score: more than average home (N=93)	65.6%

Customers who said the tips on the MyHER report were not relevant were asked if there were any specific tips that stood out to them as not being applicable to their household. Four of the 23 recipients who said the tips and messages were not relevant were not able to characterize what it was that was not relevant to them. The 19 responses from customers who did give comments about tips not being applicable or relevant are categorized and listed below.

Already following tips before receiving report (N=11)

- *Fix door leaks, which I had already done years ago.*
- *I don't remember any specific tips, but when I read the tips, they were always things that I was already doing.*
- *It told me to switch my windows, but I had already done that before getting the tip.*
- *Add insulation to your attic: We had added insulation five years ago and have it check every few years to see if we might need more. Switch to CFLs: We have been using CFLs for more than a decade. Upgrade to Energy Star appliances: done over the years.*
- *Just the tips that we were already doing, like using the CFL bulbs after we had already received some from Duke in the mail. We were already utilizing most of the tips given.*
- *All of the tips that I read were already done at our home. The tips are relevant but none of them applied to our home.*
- *We were already using CFLs, which was one tip.*

- *I felt I was already doing all I could to save energy.*
- *I do all I can and my home is new with new appliances.*
- *Weatherize using caulk and weatherstripping, which we already did years ago. Shut off your computer, which I don't have.*
- *My house is old and everything has already been done.*

Reject tips in general (N=4)
- *Some of the tips just were not always affordable to follow, even if they were good tips.*
- *I already do what I can and don't want to change that.*
- *Households are never exactly alike and the tips seem quite generalized.*
- *I feel that the report is too simplistic. The information and tips are common knowledge.*

Specific tips which were not relevant or applicable (N=2)
- *Replace your refrigerator. The amount of money that I can save per year with a newer refrigerator wouldn't even cover the cost of a new one for way too long.*
- *Wrap your water heater. It doesn't really pay off financially. It's supposed to save up to $10 per year, while all the materials needed cost about $30, so it wouldn't pay itself off for three years.*

Other issues (N=2)
- *As a renter, rather than owner, I had no say on most of the recommended treatments that could save energy.*
- *I think they were more associated with insulation. I have oil heat.*

Tip and Message Savings
Customers were asked to estimate their monthly dollar savings from taking actions inspired by MyHER tips and also their monthly energy savings. None of the participants who took action were able to answer the question about energy savings (in terms of kWh, except to repeat their dollar savings estimates) and customers were only able to give dollar savings estimates for 20.0% (31 out of 155) of actions taken. These verbatim estimates are listed below by tips and messages recalled.

Estimated Monthly Savings from Tips

Use energy efficient lighting indoors (N=8)
- *$60 to $80*
- *$25* (N=2)
- *$20*
- *$10 to $15*
- *$10*
- *$10 at the most*
- *A few bucks*

Weatherize your home (N=3)

- *$25*
- *$15 to $20*
- *$5 to $10*

Replace your windows with low-E Energy Star windows (N=1)
- *$23*

Cut standby power to your home computer system (N=1)
- *$1*

No estimates were provided for the following recalled tips (N=0):
Use energy efficient lighting outdoors
Weatherize your home
Insulate your attic
Insulate electrical outlets and switch cover plates
Install and program a programmable thermostat
Cut the standby power used for home entertainment
Replace your old hot water heater
Minimize the run time of your dryer
Use your microwave instead of a conventional oven
Buy an Energy Star dehumidifier
Buy an Energy Star refrigerator
Buy an Energy Star television
Buy an Energy Star dishwasher
Put your outdoor lights on motion detectors or timers
Unplug your second refrigerator or freezer
Airdry your laundry
Use task lighting
Turn off outdoor lights during the day
Save on hot water use

Estimated Monthly Savings from Messages

Twist (N=7)
- *$30*
- *$25* (N=2)
- *$20*
- *$10*
- *$10 at the most*
- *$5*

Vampires (N=4)
- *$30 to $40*
- *$30 or more*
- *$2*
- *$1*

Back To School (N=2)
- *$30*
- *$10 to $20*

Free CFL (N=1)
- *$20*

CFL Under (N=1)
- *A few bucks*

Hugs For Heaters (N=1)
- *$5*

Insulation (N=1)
- *$20 to $30*

Smoke Detector (N=1)
- *$10 to $15*

No estimates were provided for the following recalled messages (N=0):

Know Your Home	Water Heater
Vacation	Microwave
Home Energy House Call	Transition
Dirty Laundry	Intro / Earth Day
School	Spring Cleaning
Cold Water	Smart $aver
CFL Over	Drafts
Registers	Winter Magic
Football	Dirty Laundry
CFL	GoGreen
Walls	Screen Savers
Chimney	Power Manager
Shrink Wrap	Videos
Thermostat Wars	Room to Breathe
Coffee Maker	

Effect of Actions Taken on Comfort

Based on recalled tips and messages, customers were asked if the actions they have taken changed the comfort level in their home. These results are shown in Figure 16 for tips and Figure 17 for messages.

Actions related to insulation and weatherization are the most likely to be cited by customers as increasing the comfort in their home, including the tips "Weatherize your home" and "Insulate your attic," and the messages "Hugs for Heaters" and "Insulation." A majority of customers

taking action based on these communications said that their comfort level increased. There were also a number of tips and messages for which only one or two surveyed customers took action and said their comfort increased.

The tip which was cited by the most recipients as decreasing comfort is "use energy efficient lighting indoors" (by 25% or 6 out of 24 taking action based on this tip). The only other tip to cause any customers discomfort is "buy an Energy Star dishwasher," which decreased comfort for the only customer taking this action; the survey did not solicit clarification regarding how the new dishwasher impacted comfort. Only three messages led to customers taking actions that decreased their comfort: "Free CFL" (by 37.5% or 3 out of 8 taking this action), "Back to School" (by 25.0% or 3 out of 12), and "Twist" (by 20.0% or 7 out of 35). Aside from "Back to School" and "Energy Star dishwasher," all of these tips and messages that caused decreases in comfort have to do with lighting.
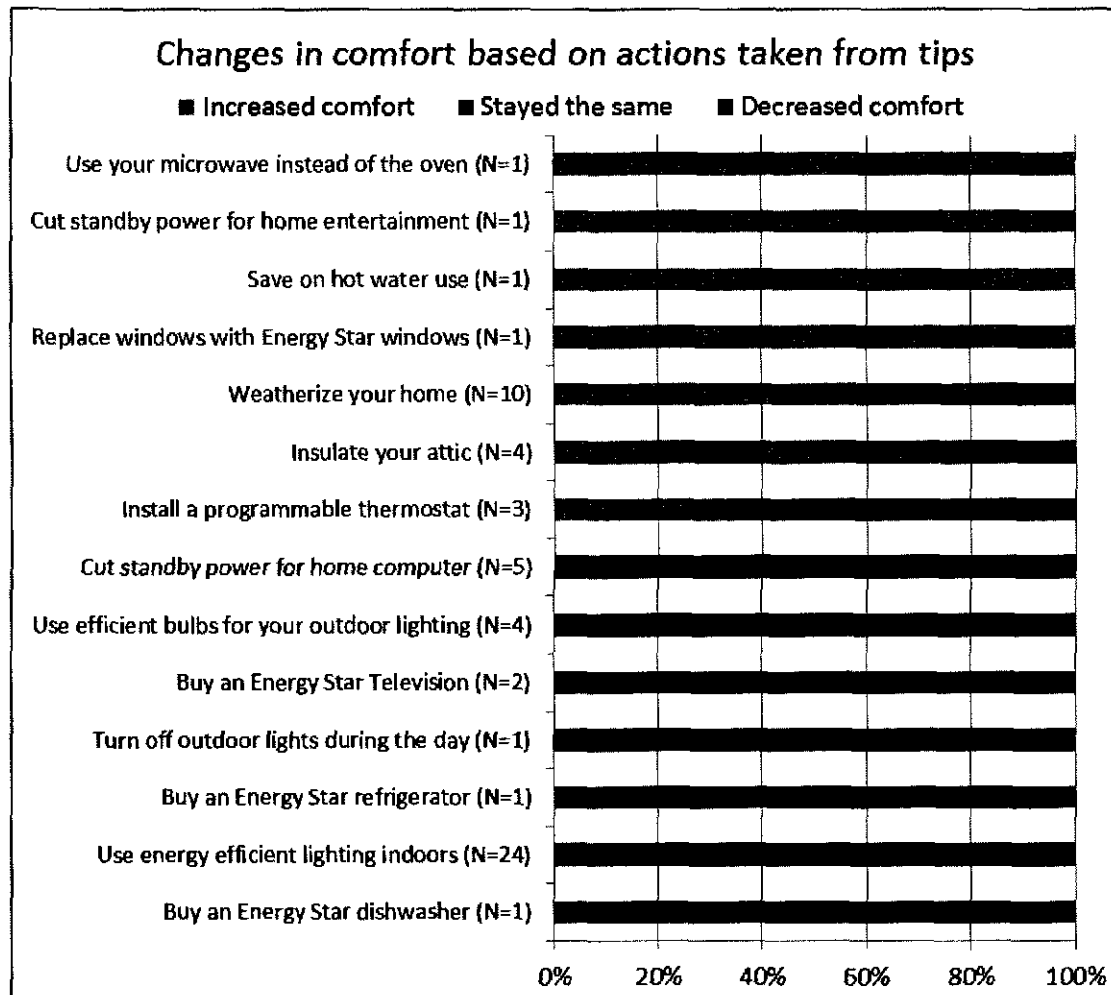
Figure 16. Changes in Comfort Due to Actions Taken from Tips
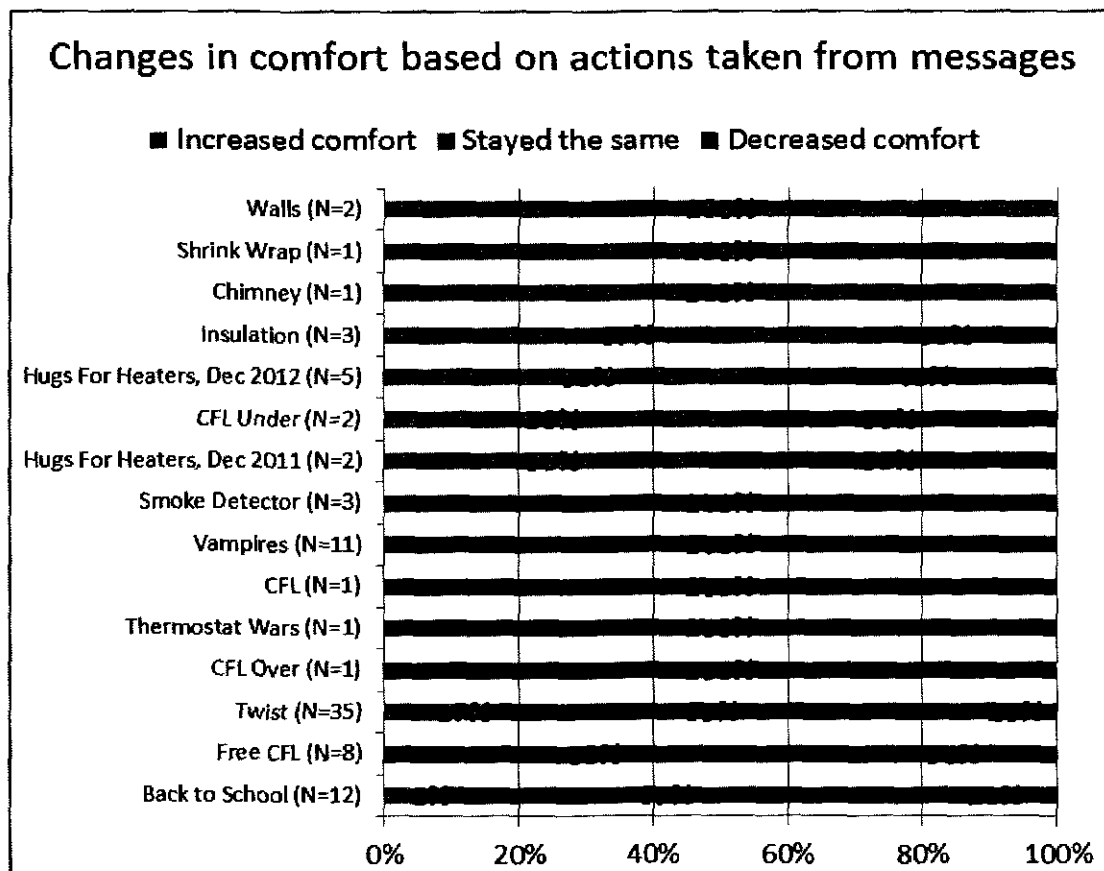
Figure 17. Changes in Comfort Due to Actions Taken from Messages

Customers Receiving Duplicate Reports

During some months, a portion of customers in the MyHER program received more than one MyHER report; this was apparently due to a data handling issue at the program vendor. Duke Energy became aware of the problem, having discovered it independently during their own quality control process. As of Spring, 2013, this problem has been corrected. Most of the duplicate reports for Ohio were sent in August, 2012 (7.2% or 18 out of 249 customer surveyed received two reports that month), though there were also a small number in May, July, and October, 2012. Among customers surveyed for this evaluation, there were no duplicate reports sent for the most recent three MyHER reports November, 2012, through February, 2013. When these duplicate reports were sent, both included the same messages, but different sets of tips.

Table 25. Customers Receiving Multiple Reports in the Same Month

Month of Report	Customers Receiving Two Reports (N=249)
September 2011	0.0%
October 2011	0.0%
November 2011	0.0%
December 2011	0.0%
January 2012	0.0%
February 2012	0.0%
March 2012	0.0%
May 2012	0.4%
June 2012	0.0%
July 2012	0.8%
August 2012	7.2%
September 2012	0.0%
October 2012	0.4%
December 2012	0.0%
January 2013	0.0%
February 2013	0.0%

For the purposes of matching tips and messages to what customers recall from the reports, duplicate reports were included in the analysis (if a customer remembered a tip from either report received in a month, it was considered a correct match and the "days to recall" is calculated from the drop date of the report with the matching tip or message).

Other Energy Efficiency Actions Taken

Some of the surveyed MyHER customers have taken actions since they started receiving[24] MyHER which they say were not influenced by MyHER messages or tips. Table 26 presents percentages of customers surveyed who have reported that they have taken such additional energy efficient actions. If the customer indicated that they took action, we asked them what they did. These open-ended responses are in Appendix L: List of Self-Reported Energy Efficiency Actions. The first question was open-ended, directed towards activities not influenced by MyHER, and elicited a variety of responses. The series of questions following the first asked about specific changes that respondents may have made in their homes and includes both actions inspired by the program and actions not inspired by the program.

When the initial open-ended question was asked about actions taken beyond those recommended by MyHER tips and messages, only one (8.3% of 12) of the customers who throw away the Home Energy Report said they had taken additional actions compared to 27.0% (64 out of 237) of those who read the reports (this difference is significant at $p<.05$ using student's t-test). For the other areas asked about, customers who throw their reports away were significantly less likely than those who read the reports to have taken action in all areas except for cooling the home ($p<.10$ or better using student's t-test for all other items).

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[24] 80.7% (201 out of 249) of customers surveyed began receiving MyHER in late 2011 (September through November), with the remainder joining the program in 2012.

Customers who say they do "about the same as others" for energy efficiency are significantly less likely to have taken additional actions beyond the program to reduce electricity usage (19.6% or 20 out of 102) compared to both those who "do more" (32.1% or 36 out of 112; significant at p<.05 using student's t-test) and those who "do less" (32.0% or 8 out of 25; significant at p<.10 using student's t-test). The only other significant differences between these groups are for reducing energy to light the home (those who do "about the same" are more likely to have done this than those who "do more" at p<.05 using student's t-test) and reducing energy used to heat hot water (those who "do more" are more likely to have done this than those who do "about the same" at p<.10 using student's t-test).

Overall, the actions most likely to have been taken by surveyed customers involve reducing energy used to light the home (68.3% or 170 out of 249) and reducing energy used to heat the home (51.0% or 127 out of 249).

Table 26. Energy Efficiency Actions Taken by Customers

Statement	Read MyHER		Compared to Others			Overall (N=249)
	Read (N=237)	Throw Away (N=12)	Do More (N=112)	Same (N=102)	Do Less (N=25)	
Taken additional action to save electricity in the home (beyond actions influenced by MyHER)	27.0%	8.3%	32.1%	19.6%	32.0%	26.1%
Reduce energy from home appliances (including actions influenced by MyHER)	38.0%	8.3%	33.9%	40.2%	36.0%	36.5%
Reduce energy used to cool home (including actions influenced by MyHER)	43.5%	25.0%	42.9%	43.1%	36.0%	42.6%
Reduce energy used to heat home (including actions influenced by MyHER)	52.7%	16.7%	50.0%	49.0%	60.0%	51.0%
Reduce energy used to light home (including actions influenced by MyHER)	70.9%	16.7%	62.5%	73.5%	76.0%	68.3%
Reduce energy from home computers or electronics (including actions influenced by MyHER)	33.3%	0.0%	33.0%	31.4%	28.0%	31.7%
Reduce energy used to heat water (including actions influenced by MyHER)	35.0%	0.0%	37.5%	27.5%	36.0%	33.3%
Have a pool	7.2%	16.7%	6.3%	7.8%	12.0%	7.6%
Base: respondents with a pool	N=17	N=2	N=7	N=8	N=3	N=19
Made changes to pool to make it more efficient	17.6%	0.0%	14.3%	0.0%	66.7%	15.8%

Those who "don't know" how they compare to others are not shown in this table.

After asking customers whether they have taken actions to reduce energy in their home in the categories shown above, we asked what they did (recording up to three actions taken per respondent) and if MyHER had any influence on these actions taken. MyHER recipients could

either say MyHER was the "main reason," "one reason among several (but not the main reason)," or that MyHER "did not have an influence" on their actions. These results are shown in Figure 18 for six specific areas of energy efficiency action (lighting, cooling, heating, water heating, home computers and electronics, and appliances).

The program influenced more than half of the actions taken to reduce energy in every category covered by this survey. Customers who took actions cited MyHER as the "main reason" for from 9.1% to 17.7% of actions taken, depending on the category. The greatest number of actions were taken in the area of lighting (N=230 actions taken by 170 customers who took action in this area) and this was also the area where MyHER's influence was greatest overall with MyHER being either the "main reason" or "one reason of several" for 75.2% (173 of 230) of actions taken to reduce energy used to light the home. The area where MyHER had the least influence is reducing energy from home appliances with only 9.7% (11 out of 113) of actions inspired by MyHER as the "main reason" and overall 54.9% (62 out of 113) including actions where MyHER was "one reason of several" for taking the action.
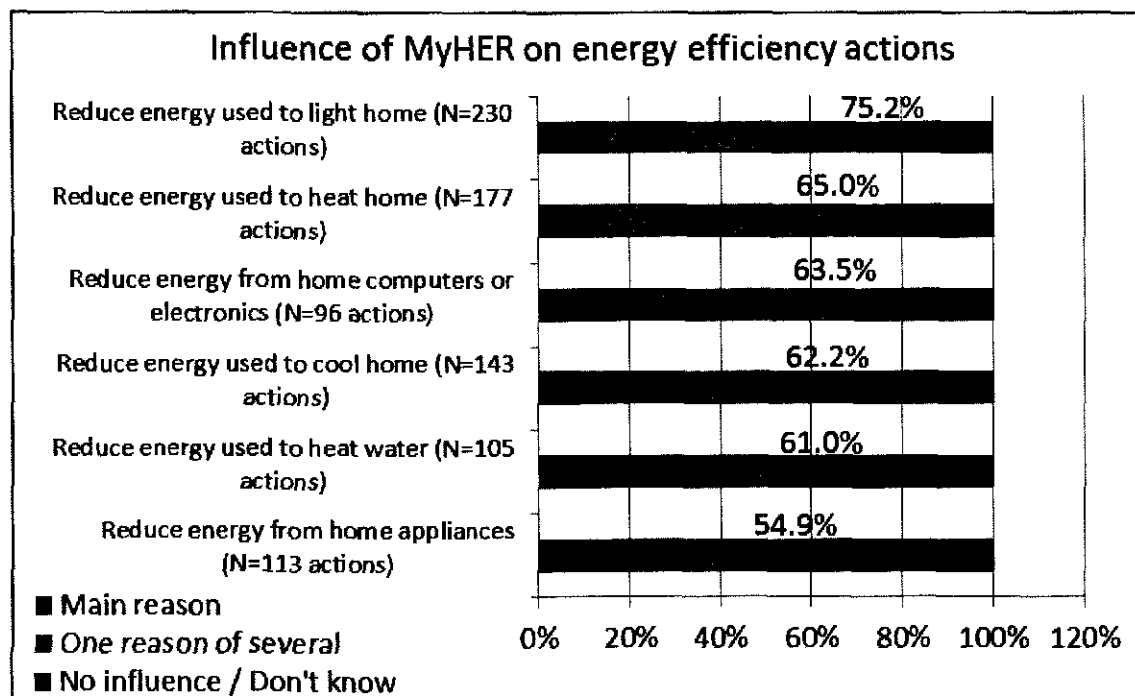
Figure 18. Influence of MyHER on Energy Efficiency Actions

MyHER customers were also asked if they had taken any actions since joining the program that might have increased their energy usage. These results are shown in Table 27; overall, the proportion of MyHER customers taking these actions is 6% or 7% for every category covered by this survey, except home computers and electronics where 13.7% (34 out of 249) of customers reported they had taken actions which would increase energy use.

Only one customer who throws their MyHER reports away took an action that increased energy usage (in the area of water heating). However, due to the small sample size, the only significant

difference between customers who read MyHER and those who throw it away is for home computers and electronics (0% out of 12 customers who throw MyHER away, compared to 14.3% or 34 out of 237 who read MyHER; this difference is significant at p<.10 using student's t-test).

There were also some significant differences related to customers' perceptions of their efforts to be energy efficient. Those who say they "do more than others" are significantly more likely to report an increase in energy usage for lighting the home (9.8% or 11 out of 112, compared to 3.9% or 4 out of 102 of those who "do about the same" and 0% of 25 who "do less;" these differences are both significant at p<.10 or better using student's t-test). Those who say they "do more" are also more likely to report an increase in usage from home appliances (8.9% or 10 out of 112, compared to 0% of 25 who "do less;" this difference is significant at p<.10 using student's t-test). On the other hand, those who say they "do less" are more likely to report an increase in energy used to cool the home (12.0% or 3 out of 25, compared to 3.9% or 4 out of 102 who do "about the same;" this difference is significant at p<.10 using student's t-test).

Table 27. Actions Taken by Customers that Increase Energy Use

	Read MyHER		Compared to Others			
Statement	**Read** (N=237)	**Throw Away** (N=12)	**Do More** (N=112)	**Same** (N=102)	**Do Less** (N=25)	**Overall** (N=249)
Increased energy from home computers or electronics	14.3%	0.0%	14.3%	12.7%	16.0%	13.7%
Increased energy used to heat water	7.2%	8.3%	8.0%	5.9%	8.0%	7.2%
Increased energy from home appliances	7.2%	0.0%	8.9%	5.9%	0.0%	6.8%
Increased energy used to heat home	6.8%	0.0%	8.9%	4.9%	4.0%	6.4%
Increased energy used to light home	6.8%	0.0%	9.8%	3.9%	0.0%	6.4%
Increased energy used to cool home	6.3%	0.0%	6.3%	3.9%	12.0%	6.0%

Those who "don't know" how they compare to others are not shown in this table.

Satisfaction with MyHER

Surveyed customers provided ratings of satisfaction with various aspects of the MyHER, their overall satisfaction with the program, and their satisfaction with Duke Energy. These satisfaction scores are presented in this section.

Surveyed MyHER customers who read the report were asked to indicate their agreement with a series of statements using a 10-point scale with "1" indicating that they strongly disagreed with the statement and "10" indicating that they strongly agreed with the statement. A summary of the results are presented in Table 28.

Overall, the aspects of the program which received the highest ratings were the reports being easy to read and understand (9.17), graphics being helpful for understanding how usage changes over the year (8.64), and graphics being helpful for understanding how usage compares to others (8.55). The lowest-rated aspect of the program was for the energy saving tips providing new

ideas (6.33). The reasonableness and appropriateness of the comparisons (7.18) and usefulness of those comparisons (7.31) also received relatively low ratings, though overall satisfaction with the program among participants surveyed is quite high at 8.71. These customers are also satisfied with Duke Energy, giving their utility a mean satisfaction score of 8.09.

Customers who read the Home Energy Report consistently give higher satisfaction ratings than those who throw them away and the differences are significant for six of the eight aspects of the report, as well as overall satisfaction with the program (p<.05 using ANOVA; significant differences of p<.10 or better are noted in the table with bold italics). The only items for which customers who throw the reports away did not give significantly lower ratings than customers who read the reports are for the reports' comparisons being reasonable and appropriate, the reports being easy to understand, and overall satisfaction with Duke Energy.

There are no significant differences in terms of customers' perception of how their efforts to save energy compare to others.

Table 28. Mean Satisfaction with MyHER

Statement	Read MyHER		Compared to Others			Overall (N=249)
	Read (N=237)	Throw Away (N=12)	Do More (N=112)	Same (N=102)	Do Less (N=25)	
The report's comparisons are reasonable and appropriate.	7.22	6.00	7.12	7.13	7.43	7.18
The report's comparisons are useful.	*7.45*	*3.50*	7.31	7.34	7.46	7.31
The reports are easy to read and understand.	9.19	8.80	9.11	9.21	9.28	9.17
The energy saving tips in the report provided new ideas that I was not previously considering.	*6.42*	*3.29*	6.14	6.55	6.59	6.33
I find the reports useful.	*8.16*	*3.50*	8.02	8.08	8.00	8.01
I enjoy receiving and reading the reports.	*8.12*	*2.67*	8.06	7.92	7.64	7.92
I find the graphics helpful in understanding how my energy usage compares to others like me.	*8.68*	*5.22*	8.43	8.59	8.96	8.55
I find the graphics helpful in understanding how my energy usage changes over the seasons.	*8.73*	*6.22*	8.56	8.59	9.12	8.64
Overall I am satisfied with the reports.	*8.83*	*5.38*	8.70	8.79	8.60	8.71
Overall satisfaction with Duke Energy	8.11	7.60	7.98	8.18	7.96	8.09

Those who "don't know" how they compare to others are not shown in this table.

MyHER recipients who rated aspects of the program at "7" or less on a 10-point scale were asked how this could be improved; verbatim responses are listed in Appendix M: Improving Aspects of the Program.

There are also some significant differences by actual recent MyHER scores when it comes to satisfaction ratings; these are identified in Table 29 with bold italic text. Customers whose recent MyHER report showed their usage was "more than average" gave lower satisfaction scores for most aspects of the program, overall satisfaction, and satisfaction with Duke Energy. The only items for which customers who use "more than average" did not give significantly lower ratings are the reports being easy to read and understand (overall, the most highly rated aspect) and the tips providing new ideas (overall the lowest-rated aspect of the program). The significance level of the difference for finding the graphics useful in understanding changes over the seasons is p<.10 using ANOVA; all other significant differences are p<.05 using ANOVA.

Table 29. Mean Satisfaction with MyHER by Recent MyHER Score

Statement	Recent MyHER Score		
	Less than efficient home (N=61)	Less than average, but more than efficient home (N=88)	More than average home (N=93)
The report's comparisons are reasonable and appropriate.	*7.96*	*7.56*	*6.13*
The report's comparisons are useful.	*7.89*	*7.74*	*6.38*
The reports are easy to read and understand.	9.18	9.24	9.04
The energy saving tips in the report provided new ideas that I was not previously considering.	6.49	6.63	5.94
I find the reports useful.	*8.43*	*8.33*	*7.43*
I enjoy receiving and reading the reports.	*8.18*	*8.45*	*7.29*
I find the graphics helpful in understanding how my energy usage compares to others like me.	*8.93*	*8.91*	*7.93*
I find the graphics helpful in understanding how my energy usage changes over the seasons.	*8.73*	*9.00*	*8.20*
Overall I am satisfied with the reports.	*9.08*	*9.15*	*8.06*
Overall satisfaction with Duke Energy	*8.57*	*8.25*	*7.62*

Those who "don't know" how they compare to others are not shown in this table.

MyHER customers in Ohio were also asked to rate their satisfaction with the program on a 5-point Likert scale, as shown in Table 30. Overall, about half of customers surveyed say they are "very satisfied" (49.0% or 122 out of 149) and only about one in twenty are "somewhat" or "very dissatisfied" (4.8% or 12 out of 249). Customers who read MyHER have significantly higher satisfaction compared to those who throw it away (p<.01 using chi-square) and customers whose usage on their recent report was "less than efficient" and "less than average, more than efficient" have significantly higher satisfaction than those whose usage is "more than average" (p<.01 using chi-square).

Table 30. Customer Satisfaction with MyHER (Ohio scale)

Statement	Read MyHER		Recent MyHER Score			Overall (N=249)
	Read (N=237)	Throw Away (N=12)	Better than efficient home (N=61)	Above average, but below efficient home (N=88)	Below average (N=93)	
Very satisfied	51.5%	0.0%	57.4%	60.2%	33.3%	49.0%
Somewhat satisfied	34.6%	33.3%	31.1%	31.8%	37.6%	34.5%
Neither satisfied nor dissatisfied	8.4%	25.0%	6.6%	4.5%	16.1%	9.2%
Somewhat dissatisfied	2.5%	0.0%	0.0%	1.1%	5.4%	2.4%
Very dissatisfied	2.1%	8.3%	0.0%	1.1%	5.4%	2.4%
Don't know	0.8%	33.3%	4.9%	1.1%	2.2%	2.4%

After giving their satisfaction rating for the program, customers in Ohio were asked why they gave the rating they did. These verbatim comments can be found in Appendix N: Reasons for Program Satisfaction Ratings.

Sharing MyHER and Using Social Media

Most of the surveyed MyHER customers in Ohio are sharing or discussing their reports with others (59.0% or 147 out of 249). Table 31 presents the percent of customers sharing or discussing their Home Energy Report with other people.

MyHER customers are most likely to discuss their report with family members (45.0% or 112 out of 249) and they are significantly more likely to discuss the report with others, if they read the reports (rather than throw them away; p<.05 using student's t-test), or if they believe they do "more than others" or "less than others" for energy efficiency (compared to those who do "about the same"; p<.05 using student's t-test). Those who feel they do "more than others" were also more likely to discuss MyHER with neighbors and co-workers compared to those who do "about the same" as others (p<.10 or better using student's t-test).

Table 31. Percent of MyHER Customers Sharing Their Reports with Others

	Read MyHER		Compared to Others			Overall (N=249)
	Read (N=237)	Throw Away (N=12)	Do More (N=112)	Same (N=102)	Do Less (N=25)	
Percent discussing their MyHER with others (total)	61.2%	16.7%	66.1%	50.0%	68.0%	59.0%
Discussed with family	46.8%	8.3%	47.3%	42.2%	48.0%	45.0%
Discussed with friends	16.0%	0.0%	17.0%	12.7%	20.0%	15.3%
Discussed with neighbors	13.1%	8.3%	17.0%	8.8%	16.0%	12.9%
Discussed with co-workers	5.9%	0.0%	8.0%	2.0%	12.0%	5.6%
Discussed with others (landlord, contractor)	0.8%	0.0%	1.8%	0.0%	0.0%	0.8%

Percentages total to more than 100% because respondents could give multiple responses.
Those who "don't know" how they compare to others are not shown in this table.

Although 40.2% (100 out of 249) of customers surveyed use social media, only 2.8% (7 out of 249) said they have interacted with Duke Energy through Facebook and 1.2% (3 out of 249) said

they have communicated with other people about energy-related issues through social media. One customer (0.4% of 249) also interacted with Duke Energy via Twitter and one customer (0.4% of 249) interacted with Duke Energy via LinkedIn.

Table 32. Social Media Usage

	Read MyHER		Compared to Others			
	Read (N=237)	Throw Away (N=12)	Do More (N=112)	Same (N=102)	Do Less (N=25)	Overall (N=249)
Use social media (in general)	40.5%	33.3%	42.0%	39.2%	36.0%	40.2%
Interacted with Duke Energy through Facebook	2.5%	8.3%	2.7%	3.9%	0.0%	2.8%
Interacted with Duke Energy through Twitter	0.4%	0.0%	0.0%	1.0%	0.0%	0.4%
Interacted with Duke Energy through LinkedIn	0.4%	0.0%	0.9%	0.0%	0.0%	0.4%
Use social media to communicate with other people about energy-related topics	1.3%	0.0%	0.9%	2.0%	0.0%	1.2%

Those who "don't know" how they compare to others are not shown in this table.

The three MyHER recipients (1.2% of 249) who said they discussed energy-related issues through social media were asked what they communicated about. These responses are listed below.

- *I didn't start the conversation, but I responded to a derogatory comment made about Duke to defend Duke's position. I also responded to a posting about Duke's president's trip to China, where information about renewable energy is being used, by posting a positive comment.*

- *High price of electric bill and customer service.*

- *I might have posted on Facebook about when the power in my house went out and Duke responded quickly.*

Customers Contacting Duke Energy

Less than half of MyHER recipients (41.0% or 102 out of 249) say they have visited the Duke Energy website in the past year, as seen in Table 33. The most commonly cited reason for visiting the website is to pay bills (20.0% of 249 customers surveyed, which is 49.0% or 50 out of 102 who visited the website). This was also the only reason given for visiting the website given by customers who throw MyHER away. There were no other reasons for visiting the Duke Energy site mentioned by more than 5% of customers surveyed.

Table 33. Duke Energy Website Usage

	Read MyHER		Compared to Others			
	Read (N=237)	Throw Away (N=12)	Do More (N=112)	Same (N=102)	Do Less (N=25)	Overall (N=249)
Visited Duke Energy website within the past year (for any reason)	40.9%	41.7%	42.0%	39.2%	48.0%	41.0%
Pay bill at website	19.4%	41.7%	19.6%	18.6%	32.0%	20.0%
Search for info on EE programs	5.1%	0.0%	5.4%	4.9%	4.0%	4.8%
Review or change account info	4.6%	0.0%	2.7%	4.9%	12.0%	4.4%
Search for ways to save on bills	4.6%	0.0%	3.6%	5.9%	4.0%	4.4%
Look at / print out bill (not pay it)	3.0%	0.0%	1.8%	4.9%	0.0%	2.8%
Compare rates / pick a provider	3.0%	0.0%	1.8%	2.0%	4.0%	2.8%
Check energy usage charts / look up history	2.5%	0.0%	3.6%	2.0%	0.0%	2.4%
Search for info on power outage	2.1%	0.0%	2.7%	2.0%	0.0%	2.0%
Look for customer service contact info	2.1%	0.0%	2.7%	2.0%	0.0%	2.0%
To get free CFLs	1.7%	0.0%	1.8%	2.0%	0.0%	1.6%
Look for / apply for jobs	0.4%	0.0%	0.9%	0.0%	0.0%	0.4%
Unique reasons (listed below)	3.4%	0.0%	3.6%	3.9%	0.0%	3.2%
Don't know why visited website	1.3%	0.0%	0.9%	1.0%	4.0%	1.2%

Those who "don't know" how they compare to others are not shown in this table.

Eight MyHER recipients visited the Duke Energy Website for unique reasons, which are listed below.

- *I had a meter issue, which did get resolved.*
- *I looked for a phone number to see if Duke could put power in the back building.*
- *I sought free passes to a winter holiday train.*
- *I sought information about Duke Energy stock and the CG&E merger.*
- *To find out ways to pay my bill.*
- *To set up electricity ordered for display at a convention.*
- *To turn the electricity on and off to our summer home.*
- *We had some street lights out that they needed to replace and looking up info about the home energy audit.*

About one MyHER recipient in seven (14.1% or 35 out of 249, including both phone and email) has contacted customer support (for any reason), as shown in Table 34. The vast majority of these contacts were made by telephone (94.3% or 33 out of 35 contacts). Only two customers (0.8% of 249 surveyed) contacted Duke Energy by email.

Table 34. MyHER Customers Contacting Customer Support

	Read MyHER		Compared to Others			Overall (N=249)
	Read (N=237)	Throw Away (N=12)	Do More (N=112)	Same (N=102)	Do Less (N=25)	
Called customer support	13.5%	8.3%	16.1%	10.8%	8.0%	13.3%
Emailed customer support	0.8%	0.0%	0.9%	1.0%	0.0%	0.8%
Did not contact customer support	85.7%	91.7%	83.0%	88.2%	92.0%	85.9%

Those who "don't know" how they compare to others are not shown in this table.

When MyHER recipients who said they contacted Duke Energy were asked what they contacted Duke Energy about, one-third of these customers said they were calling about billing, accounts, and related issues (34.3% or 12 out of 35 customers who contacted Duke Energy or overall 4.8% of 249 customers surveyed). Issues with power outages were mentioned by eight customers (overall 3.2% of 252 surveyed), while only four (1.6% of 249) called to correct information or ask questions about their Home Energy Report and ten (4.0% of 249) contacted Duke Energy for other miscellaneous reasons. These responses are categorized and listed below.

Billing, metering, account and cost issues (N=12)

- *It was concerning my bill.* (N=5)
- *I called about financial assistance.*
- *I called to ask why my bill was higher. They said I was using more electricity.*
- *I had a question about my online account.*
- *I was looking at other houses' energy costs.*
- *I was looking for information on costs per KWh.*
- *There was a problem with the conversion of the meter, transposed numbers.*
- *We had questions about our high bill and needed to verify that our meter was accurate.*

Power outages (N=8)

- *We had a power outage.* (N=7)
- *My mother-in-law is on oxygen and the power went out.*

Questions about or corrections to MyHER (N=4)

- *I called to find out why the Energy Reports keep telling us that we are using more power than the average household.*
- *Our house was compared against homes with the wrong square footage.*
- *To tell Duke that my home's size was listed incorrectly on the report.*
- *We called Duke to tell them to not send us the report.*

Other reasons (N=10)

- *For a gas leak about seven years ago.*
- *About Home Energy House Call.*
- *I had questions about the new electric meter that was being installed.*

- *I was switching my gas service away from Duke, and then I also switched my electrical service from Duke.*

- *I needed a hardship payment plan due to my recent hospitalization, and had a $700 balloon payment due this February.*

- *My service had been switched to another company, who claimed to be associated with Duke. The company was NOT associated.*

- *Starting and stopping utility service. I work as a property manager, so I make frequent calls.*

- *There was a wire hanging low between the house and the chicken coop. Duke Energy sent someone out that day to fix it.*

- *To get the free light bulbs.*

- *To report something not working on the website.*

MyHER recipients who contacted Duke Energy customer support were asked if they were satisfied with the response they received. Two-thirds (65.7% or 23 out of 35) reported that they were satisfied, while seven customers said they were not satisfied (20.0% of 35, or 2.8% of all 249 customers surveyed) and five customers (14.3% of 35, or 2.0% of all 249 customers surveyed) reported mixed or inconclusive results. Among the seven customers who say they were not satisfied with their customer support experience, two contacted Duke Energy about MyHER, two contacted Duke Energy about billing issues, and the other three called for other reasons. The negative, mixed, and inconclusive results are categorized and listed below.

Not satisfied, billing-related (N=2)
- *I was not satisfied. They weren't willing to help me get to where I needed to pay my bill and I found that some of the customer service people were not very nice to me.*

- *I am extremely dissatisfied. The first time I called they gave me incorrect information. The second time I called they gave me correct information, but by then I had already taken steps that cost me time based on the incorrect first call. It was a nightmare. I found out that the clock for the 30-day period for evaluation and approval starts the minute the form is sent out. This makes it tough because I have to pressure doctors for immediate turn-around.* (Called about hardship payment plan)

Not satisfied, MyHER-related (N=2)
- *I didn't hear back from them. I'm still getting the reports.* (Called to cancel MyHER)

- *I am not satisfied, because they never really gave me an answer to my question.* (Called to ask why MyHER shows they use more energy than the average home)

Not satisfied, other reasons (N=3)
- *I am not satisfied. Accounts often can't be found quickly. I believe that a search by address or name should be faster and designed better. This has happened several times, and more than half the time I call. The system slows everyone down. Duke needs a better database accessing system and/or better customer service training.*

- *I called on a Saturday to note a strong gas odor. One person came out, marked the leak location with a flag, and left. Ten days later, the odor was strong again. The fire department was looking for the source. I got out of bed to show where the leak had been flagged, but the flag was missing. The fire department said they were never notified about a leak by the utility. I have concern over internal communication for scheduling repairs and external communication, or lack thereof, with the fire department.*"

- *I am not satisfied. One, I need to have accurate information on energy costs/KWh to use my 'The Energy Detective'* [TED] *system, I have had repeated problems getting accurate information; two, I have tried to sign up for Power Manager twice, but have never heard back from Duke to set up the installation; and three, I was converted to a digital meter recently, but the meter displayed only an error message. I called Duke and was told that was 'normal,' but I don't believe that. The malfunction has not been explained adequately to me.*

Mixed or inconclusive results (N=5)

- *At first no, because I was given bad information, but I was able to get it straightened out.* (Called to switch gas service)

- *I was satisfied, but felt I could do nothing about it.* (Called to ask why bill was higher and was told that they were using more energy)

- *I'm neither satisfied nor dissatisfied, I only got an automated response.* (Called to report a power outage)

- *The first person wouldn't admit the mistake and transferred me to someone else. Then it went fine.* (Called about transposed numbers on meter reading)

- *The representative was rude and the supervisor was bad too. Otherwise, I have had good service the other times I called.* (Called about billing)

Changes to the MyHER Format

The format of Home Energy Reports in Ohio changed with the mailings in March of 2012. Customers in Ohio were asked if they recalled these changes, what had changed, and whether the changes improved any aspects of the program or not.

Overall, only about one surveyed customer in seven recalls the change in the reports (14.5% or 36 out of 249). There were no significant differences in the rate of recall between customers who read or throw away the reports or by customers' perception of how their energy efficiency efforts compare to others.

Depending on the specific aspect of the program inquired about, between 25.0% and 36.1% customers who recalled the changes report that the changes improved the reports. For overall program satisfaction, 36.1% (13 out of 36) of customers who recalled the changes said that the changes improved their level of satisfaction.

Only one customer surveyed said that the changes made the report worse and in only one aspect; a recipient who reads the reports, says they do "less than others" for energy efficiency, and whose most recent MyHER showed their usage was "more than average," said that the changes have made the reports more difficult to understand.

Table 35. Customers Who Noticed Changes to MyHER in 2012

	Read MyHER		Compared to Others			Overall (N=249)
	Read (N=237)	Throw Away (N=12)	Do More (N=112)	Same (N=102)	Do Less (N=25)	
Noticed a change in reports in 2012	14.3%	16.7%	17.9%	11.8%	12.0%	14.5%
Base: customers who noticed a change in *reports in 2012*	N=34	N=2	N=20	N=12	N=3	N=36
Overall satisfaction with MyHER: percent who say it improved	35.3%	50.0%	35.0%	41.7%	0.0%	36.1%
Graphs are helpful in understanding how usage compares to others: percent who say it improved	38.2%	0.0%	30.0%	33.3%	66.7%	36.1%
Easier to understand: percent who say it improved	32.4%	50.0%	25.0%	41.7%	33.3%	33.3%
Tips provide new ideas: percent who say it improved	29.4%	50.0%	25.0%	41.7%	0.0%	30.6%
Reports are useful: percent who say it improved	29.4%	0.0%	25.0%	33.3%	0.0%	27.8%
Enjoy receiving and reading reports: percent who say it improved	26.5%	0.0%	25.0%	16.7%	33.3%	25.0%

Those who "don't know" how they compare to others are not shown in this table.

MyHER recipients who recalled that the report changed in the spring of 2012 were asked what had changed about the report. The recollections of these 36 customers are listed below. The most frequently mentioned changes have to do with colors, charts, and the layout and graphics of the report.

Graphics, charts, colors (N=22)
- *Color, longer, different graphics*
- *I think that the graphs changed.*
- *I think the graphics changed but it's hard to remember.*
- *I think the graphs and format changed.*
- *I think there was a color change.*
- *It got more colorful and added greater financial detail.*
- *It looked different.*
- *New design*
- *Something about the look of them, but I am not sure what it was specifically.*
- *The chart changed.*
- *The charts, I think*
- *The colors changed.*

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- *The colors*
- *The entire layout changed.*
- *The graph type changed.*
- *The graph was different; lines/dots and arrows changed.*
- *The graphics layout changed.*
- *The graphs and I think you added color.*
- *The reports are now in color and there's something different about the graphs.*
- *They added color. It's more clear about monthly usage.*
- *They are more picture-y and the graphs are colored.*
- *They are using color and the graphics are different.*

Other changes (N=7)
- *The report added a new bar chart that tracked my use of energy by day of the week.*
- *The reports used to be three pages. They are shorter now.*
- *I used to be able to bring up my monthly report online with my bill. I can't access that anymore.*
- *It appeared more modern and the comparisons were easier to read.*
- *Used to have two other houses to compare with. Now I only have one house.*
- *It seems like Duke cares more.*
- *The newer version of the reports seemed to supply more information, but makes less sense.*

Don't know / can't remember (N=7)
- Don't know (N=7)

Customer-Suggested Changes to MyHER
About one in three MyHER recipients surveyed (32.5% or 81 out of 249) had something they would like to see changed about the MyHER program as seen in Table 36. Customers who say they do "more than others" (41.1% or 46 out of 112) and "less than others" (40.0% or 10 out of 25) to conserve energy are both about twice as likely to have suggestions to improve MyHER compared to customers who say they do "about the same" as others (22.5% or 23 out of 102; these differences are significant at $p<.05$ using student's t-test).

Table 36. Customers That Would Like Changes Made to MyHER

	Read MyHER		Compared to Others			Overall (N=249)
	Read (N=237)	Throw Away (N=12)	Do More (N=112)	Same (N=102)	Do Less (N=25)	
Customers that would like to see changes to MyHER	32.9%	25.0%	41.1%	22.5%	40.0%	32.5%
No change / fine as is	62.0%	58.3%	52.7%	71.6%	56.0%	61.8%
Don't know / not specified	5.1%	16.7%	6.3%	5.9%	4.0%	5.6%

Those who "don't know" how they compare to others are not shown in this table.

Table 37 shows the types of suggestions made by MyHER customers who made suggestions to improve the program. The most common suggestions involved wanting to see more information or detail on the report (made by 31 customers, or 12.4% of all 249 customers surveyed),

concerns about the accuracy of household comparisons (mentioned by eleven customers, or 4.4% of 249), and wanting more, better, and/or less repetitious tips (eight customers or 3.2% of 249). Among customers who throw MyHER away who made specific suggestions, two out of three (66.7%) suggested that Duke Energy should stop sending the reports.

Table 37. Changes Customers Would Like Made to the MyHER

Base: customers who made specific suggestions to improve program	Read MyHER		Overall (N=81)
	Read (N=78)	Throw Away (N=3)	
Want more information / details (listed below)	38.5%	33.3%	38.3%
Household info or comparison group is not accurate	12.8%	33.3%	13.6%
More / better / less repetitious tips	10.3%	0.0%	9.9%
Include number of residents in home for comparisons	6.4%	33.3%	7.4%
Send by email / available online	7.7%	0.0%	7.4%
Send reports less often	5.1%	0.0%	4.9%
Send reports with bill	5.1%	0.0%	4.9%
Want less information / simplify	3.8%	0.0%	3.7%
Don't want to receive reports	1.3%	66.7%	3.7%
Unique suggestions (listed below)	25.6%	0.0%	24.7%
Lower energy rates (not program related)	2.6%	0.0%	2.5%

Percentages total to more than 100% because respondents could give multiple suggestions.

Thirty-one customers (12.4% of 249) said they wanted more information or details on their Home Energy Report, which was the most frequently made suggestion. The verbatim responses of these customers, which explain the type of details or information, are listed below. Some common themes from these suggestions include: providing information on natural gas usage, as well as electricity; including outdoor temperature information; and taking rate increases into account. Three recipients requested kilowatt hours be shown on the reports, one mentioned Power Manager, and one mentioned smart meters.

Read MyHER: suggest more information or details (N=30)

- *Add kilowatt hours.*
- *Better inform the customer that reports are tailored to each home; that is not clear enough.*
- *Greater detail; as an example, to get an infra-red report would be very informative.*
- *I really only use the first page of the report. Some of the verbiage used in the report could use definitions.*
- *We have our gas and electric with different companies, so provide some sort of cost comparison for that. Also, we just had the Power Manager device put on our A/C, so provide details of how much that is saving us.*
- *I would like the report to account for rate increases and provide a cost comparison.*
- *I would like the report to include some information about the energy used by a garage-door opener.*
- *I would like the reports to be more individualized and specific per home.*

- *I would like the reports to show a breakdown of my energy usage per day of the week and time of day.*

- *I really watched the report during Christmas to see how my holiday lights were affecting the bill. I guess it would be nice if you had the average house using lights too, so I wouldn't feel so bad.*

- *Include something about monthly temperature ranges to show why a month might be extra high or low.*

- *Instead of just listing dollars, show kilowatts. Also, measure gas usage in addition to electricity usage.*

- *It would be helpful if there was a breakdown to see what appliances are using what amount of power. It's probably not possible, but it would really let us know what is using a lot of power, so we could know what we need to focus on.*

- *It would be nice to compare for an entire season. Extend the chart for a few extra months.*

- *Just put more information in text form and compare my own consumption from one year to the next, not other households.*

- *Maybe more of a breakdown of our energy per day.*

- *More detail*

- *More quantifiable examples; if I am spending a certain amount on a high efficiency appliance, calculate how many years it will take to pay for itself. Also, simple tips; ask customers who use several lights 'Do you really need that?' Also, find ways to involve family and the rest of the household, make it a team effort. Also, provide real-world examples for families, that by taking an action they can save a certain amount and then treat themselves to a movie.*

- *Please add more specific information about my home.*

- *Provide data specifying electricity usage by item and/or appliance.*

- *Provide more detail for my house.*

- *Since Duke Energy installed smart meters, I would be interested in seeing when we use more electricity throughout the day, especially because we are both retired and home during the day.*

- *The graph section should show the savings that might result from making various home efficiency upgrades.*

- *The greater the information available, the better. As homes get older, variability gets bigger depending on windows and roofing/reroofing. I wonder how that influences comparables. I would like to read how much will be saved from caulking, weatherstripping, and other little steps.*

- *The report could measure gas usage.*

- *The reports don't reflect that rates change and that the billing cycle can affect the amount paid for that month. Give information about what the average temperature is for those months so we can see how the weather may be affecting our energy usage.*

- *Add 'did you know' type questions such as 'Did you know that three hours of TV use costs X amount of dollars?' Also, add info about how one's actions impact the environment and resources. Also, quick tips like fill the refrigerator with boxes to fill the gaps to save energy.*

- *I would like to see a graph on how many houses one is being compared to; also, a proficiency rating.*

- *You should show how much power was used one year ago on the same month, so I could compare year to year easier.*

- *You show the monthly cost for the year and years before, but it would be helpful to see the average temperature for those months to give a better idea of what might have been contributing to the amount spent. Also, if you could find a way to show what the rates were at that time period because you can see the dollar amounts but it's really the Kilowatts that tell you how much power is being used, even though it's more understandable for everyone showing the dollar amounts.*

Throw Away MyHER: suggest more information or details (N=1)
- *Add information about the latest technologies, what's new on the market.*

Twenty customers (8.0% of 249) made unique suggestions for improving the program, which are listed below. All of the customers with unique suggestions read MyHER (none throw it away).

Read MyHER: unique suggestions (N=20)
- *Don't show that we use more than anybody else.*

- *Just report on newer technologies and reasons why Duke has to close down power plants locally.*

- *Put the tips in a more prominent place.*

- *Eliminate the excess paper that comes included with the report. Make the report small enough to be easily mountable on a refrigerator for convenient and re-mindful viewing.*

- *Instead of having the same charts each time, the report could vary, for instance, showing you the energy use in the house one time and then giving you a monthly comparison of heating temperatures the next time. People are not interested in what's going on in April when it's December, so the report doesn't need to do the comparisons constantly. Include those comparisons in months when energy use tends to be higher, instead of repeating it each time.*

- *I would like the graphics to be bolder and more engaging.*

- *I would like to see the reports co-ordinate with the reading date of my bill.*

- *I'd like to see my actual usage compared to the usage of the average home, kilowatt-hours instead of dollars.*

- *If there is a new tip, make sure the design and text calls attention to it, so that I don't think it's just a tip I've already seen. Just make the text jump out more when it's an important tip.*

- *Add information about the latest technologies, what's new on the market.*

- *I would like to be able to respond to the tips, so that the report doesn't repeat tips that I am always following.*

- *Make it clearer what other houses are being compared with mine. Put the tips right on top of page. Just do a line chart and make it more prominent. The houses chart didn't relate to me.*

- *Make the reports optional.*

- *More graphics. Different color. Make it look more interesting by adding color. Use highlighting to draw attention to helpful hints/key points.*

- *Most improvement recommendations aren't mine to do, since I am a renter. It would be better if the report had graphs for renters versus owners.*

- *I suggest that the report use demographic targeting. For example, get senior citizens to be aware that lower water temperature would keep them from getting scalded accidentally. Also, let people know that they can find higher wattage CFL lighting to reach comfortable lighting levels, rather than giving up after using low wattage CFLs.*

- *Separate gas from electric, so people can see what they need to improve upon.*

- *Show the results if things are helping reduce the building of new power plants.*

- *To prevent people overlooking parts of the report, it needs a graphic element or something to call, or pull, one's attention to that particular piece of information.*

- *Use more graphics. Put more tips for the summer on the front page, so people see them right away.*

Participation and Interest in Other Duke Energy Programs

Surveyed customers were asked what other Duke Energy programs they have participated in, which is shown in Table 38. The most frequently mentioned programs were CFLs by mail (overall 65.1% or 162 out of 249) and Power Manager (21.7% or 54 out of 249).

Recipients who read MyHER are more likely to participate in other Duke Energy programs, in particular the CFL program (66.7% or 158 out of 237, compared to 33.3% or 4 out of 12 who throw MyHER away; significant at $p<.05$ using student's t-test). Overall, customers who read MyHER participated in twice as many programs (1.09) as those who throw them away (0.58; this difference is significant at $p<.10$ using ANOVA).

Table 38. Self-Reported Participation in Other Duke Energy Programs

	Read MyHER		Compared to Others			Overall (N=249)
	Read (N=237)	Throw Away (N=12)	Do More (N=112)	Same (N=102)	Do Less (N=25)	
CFLs by mail (not HEHC or PER)	66.7%	33.3%	67.0%	61.8%	68.0%	65.1%
Power Manager	21.9%	16.7%	23.2%	18.6%	24.0%	21.7%
Home Energy House Call (HEHC)	9.3%	0.0%	9.8%	5.9%	12.0%	8.8%
Residential Smart $aver HVAC	5.5%	8.3%	3.6%	5.9%	8.0%	5.6%
Personalized Energy Report (PER)	3.4%	0.0%	4.5%	2.0%	4.0%	3.2%
Appliance Recycling	2.5%	0.0%	0.9%	2.0%	12.0%	2.4%
None of the above	24.9%	58.3%	23.2%	30.4%	24.0%	26.5%
Average number of programs	1.09	0.58	1.09	0.96	1.28	1.07

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participated in (from the list above)						
Participating in two or more programs (from the list above)	26.6%	16.7%	25.0%	23.5%	32.0%	26.1%

Those who "don't know" how they compare to others are not shown in this table; percentages may total to more than 100% since respondents can participate in more than one program.

MyHER recipients were also asked to rate their interest in participating in Duke Energy programs in which they had not already participated in. Mean interest ratings on a 10-point scale (where 10 is most interested and 1 is least interested) are shown in Table 39. The highest interest score is for CFLs by mail at 7.0 overall, though this is not significantly higher that the ratings for most other programs; the exception is Power Manager, which has a significantly lower rating (3.9) than any of the other programs (significant at $p<.05$ using ANOVA).

Customers who throw MyHER away gave significantly lower ratings for all programs asked about, with the exception of Appliance Recycling (all other differences significant at $p<.05$ using ANOVA). Although customers who say they "do less" than others for energy efficiency give lower interest ratings than those who "do more" or "about the same," these differences are not statistically significant.

Table 39. Ratings of Interest in Other Duke Energy Programs

	Read MyHER		Compared to Others			
	Read (N=237)	Throw Away (N=12)	Do More (N=112)	Same (N=102)	Do Less (N=25)	Overall (N=249)
CFLs by mail (not HEHC or PER)	7.2	4.5	7.6	6.9	5.7	7.0
Residential Smart $aver HVAC	6.9	4.9	6.8	6.9	6.7	6.8
Appliance Recycling	6.5	5.4	6.4	6.7	6.3	6.5
Home Energy House Call (HEHC)	6.8	3.2	6.7	6.7	5.0	6.6
Personalized Energy Report (PER)	6.6	3.5	6.8	6.3	5.7	6.5
Power Manager	4.0	1.8	3.7	4.1	3.8	3.9

Those who "don't know" how they compare to others are not shown in this table. Customers were only asked to rate programs that they had not already participated in.

Additional Services from Duke Energy

TecMarket Works asked surveyed MyHER customers (those that read it and those that throw the MyHER away, N=249) about their interest in a list of additional services that Duke Energy may offer. TecMarket Works read the following statement: *As a follow up to the report, Duke Energy is interested in providing further services that might be of interest to customers. I am going to read a list of possible services that Duke Energy may consider offering. On a scale from 1-10, with 1 indicating that you would be very uninterested, and 10 indicating that you would be very interested agree, please rate your interest in the following services.*

A summary of the responses is presented in Table 40 below. Surveyed MyHER customers have the most interest (mean rating 8.1 on a 10-point scale) in rebates for energy efficient home improvements, which are provided through Duke Energy's Smart $aver[®] program. Mean interest ratings for the other services inquired about were all significantly lower than for Smart $aver rebates ($p<.05$ using student's t-test). The next-highest ratings given by respondents were for

home energy audits and inspections at 6.3, and all but one of the other services received mean ratings between 5.0 and 5.9 on a 10-point scale. Interest in social networking sites set up by Duke Energy received a mean interest rating significantly lower than any of the other services at 2.9 on a 10-point scale (significantly lower than all of the other services at p<.05 using student's t-test).

There was not a follow up question asking customers how they would like to receive further information if they indicated they were interested in these services, but since many read the MyHER, directions to finding this kind of information could be included in a MyHER mailing. Indeed, compared to customers who throw MyHER away, those who read MyHER give significantly higher ratings of interest in every program described (p<.05 using ANOVA, except for social networking which is significant at p<.10).

Table 40. Ratings of Interest in Additional Duke Energy Services

	Read MyHER		Compared to Others			Overall (N=252)
	Read (N=237)	Throw Away (N=12)	Do More (N=112)	Same (N=102)	Do Less (N=25)	
Rebates for energy efficient home improvements	8.2	5.8	8.2	8.3	6.9	8.1
Home energy audits or inspections of your home with specific recommendations for improvements	6.5	2.8	6.7	6.1	5.6	6.3
Inspection services of work performed by contractors	6.0	2.6	6.1	5.8	5.3	5.9
Help in finding energy efficient equipment and appliances	6.0	2.9	5.8	6.0	5.4	5.8
Financing for energy efficient home improvements	5.5	1.9	5.4	5.4	5.2	5.3
Help in finding weatherization contractors to make your home more efficient	5.1	2.5	5.2	5.0	4.8	5.0
Social Networking sites such as Facebook and Twitter to read about or discuss energy efficient solutions with energy experts.	3.0	1.4	2.6	3.3	2.8	2.9

Those who "don't know" how they compare to others are not shown in this table.

Customers were also asked an open-ended question, *What other services could Duke Energy provide to help improve home energy efficiency?* Fifty-two customers made suggestions, which are categorized and listed below.

Duke Energy should provide more information / inform customers better (N=11)

- *Duke should make sure that people realize that they can look up detailed usage information on Duke's website.*

- *Email seasonal tips on how to save energy.*

- *For special needs families, help with ideas on reducing costs for medical equipment electrical use. I don't think Duke knows how many families there are facing special needs.*

- *I live in a mobile home and have been trying to purchase a high-efficiency furnace with an electric ignition, which could be installed IN my home. I've been told that such a furnace could only be installed outside of my home and that I would need to build a structure or shed for it to be in. I've checked with multiple contractors and have been told the same information. I may call customer service to speak with someone regarding this to see if they have any other suggestions.*

- *Make a list what Duke Energy considers preferred appliances and electronics for the area, sort of like consumer reports does. Duke Energy should do a better job of informing the general public about power, not just how it's used in the house, but how the power grid works and how power and it's use/production changes throughout the day. They need to let the consumers know how saving power will keep the company from having to build more power plants and how that can result in keeping the rates lower. Also, inform the customer about the future technologies that the company is working on and what is working well now. I was at a futuristic tech center in an office park in northern KY that I thought was pretty great at informing the consumers, but it wasn't advertised very well. I had to seek it out.*

- *More information on how to save money.*

- *Provide more education for children about ways to be energy-efficient.*

- *Provide more information about energy efficiency to people who do not have Internet access. There is a lot of useful information on Duke's website, but not everyone is able to access that. So, make the public more aware of energy saving tips outside of the electronic realm, through mailings, billboards, or TV.*

- *Provide open-sourced discussions with energy experts and mad scientists to find new ways to decrease energy consumption.*

- *Provide seminars and energy education for children.*

- *We get electronic bills, so I don't get the inserts, so I was unaware of the programs that you offer. If there is a way to let us know about the programs, that would be helpful.*

Green energy (N=5)

- *A solar program or wind program; get some information about solar and wind power out, so people know what is the best equipment for them to invest in.*

- *Offer rebates for solar panels.*

- *Provide info on solar panels or other alternative energy sources. Add a blog to their website where customers could interact with the energy experts.*

- *Rebates for solar installations.*

- *Rebates for solar panels; have an eco-friendly solution to everyday activities, like hanging clothes to dry, instead of using a dryer, or how to use sunlight to light the rooms in your home.*

Insulation and sealing (N=5)

- *A way to help with cost of insulation; we're low-income and adding insulation to the walls and underneath the house would help considerably, but we can't afford to do it.*

- *Duke could have videos on their website or social media that provide information on how to weatherize your doors and windows and then provide rebates for those materials.*

- *I would like to learn how to eliminate the winter air leaks surrounding my attic fan.*

- *Rebates for efficient windows.*

- *To add to their suggestion of which proper storm door to purchase.*

Other free or discounted items / rebates (N=5)

- *Anything free.*

- *Duke should offer a choice between bill credits or rebates for energy efficient upgrades.*

- *Place more emphasis in designing programs that have direct financial incentives. I'm more concerned with finances than carbon footprint. Customer philosophy is often tied to age of customer.*

- *Providing customers with power strips.*

- *Rebate deals for other energy efficiency products; foam wall insulation, and other things*

Appliances (N=3)

- *A recycling program for computers and accessories; a voucher program for cost efficient appliances that customers could pay back on monthly bills; Duke could pick out certain energy-efficient appliances that they'd like customer to be using and then they could let the customer know how much money that they are saving monthly.*

- *Include other types of appliances in the Appliance Recycling program.*

- *About 20 years ago, I had Cincinnati Gas and Electric and they had a program that loaned out a device that you plugged an appliance into and then plugged the device into an outlet. The device showed you how much energy that appliance was using, so you could compare how much energy it was using and how much energy a newer model would use.*

Other suggestions (N=9)

- *I found a booklet at a garage sale, published several years ago, that listed the costs of using various electrical items. I would like to see that republished and sent out every year. I'd also like to see the development of a timer for heating the hot water tank. Most systems have tanks that get heated even when nobody is home.*

- *A program that would supply air and water filters.*

- *Duke should offer energy efficiency consultation services.*

- *I live in a mobile home and I was interested in the Home Energy House Call program. I was told that mobile home owners do not qualify for the program. A program that is similar for mobile homes would be a great service that you could provide.*
- *Keep coming up with funding for programs.*
- *Offer suggestions on how to rate gas use and if it more efficient to heat the pool.*
- *Something to help out people who rent.*
- *Work with builders to build better homes from the start.*
- *It'd be nice if Duke teamed with the water company, so that we could see all of our home energy/water usage listed on one bill.*

Lower rates (N=9)
- Lower the rates (N=6)
- *Duke should be able to offer the lowest energy rates and not be undercut by all these competing energy providers.*
- *Match the rates of other energy suppliers.*
- *Provide the cheapest possible energy available to make me happy.*

Service issues (N=3)
- *Expand the gasoline the seven hundred feet to my house.*
- *Run natural gas lines down my street.*
- *I would like Duke to start using a remote electric meter reading, so they don't have to estimate or jump my fence to try and read the meter.*

Utility questions (N=2)
- *I would like to have clarification on why a person should stay with Duke. I have been receiving a lot of phone calls and mail from competitors.*
- *I would like to see clarification on which company actually supplies the energy to my condo.*

Electric Vehicles and Solar Power
MyHER customers were also asked if they had an electric vehicle, solar water heating or solar panels for their home.

Eight customers surveyed own electric vehicles; all eight read MyHER and say they "do more than others" for energy efficiency. Six of these eight customers specified that they own an electric hybrid auto, one customer owns both an electric scooter and an electric bicycle, and one customer did not specify.

Two customers surveyed have solar water heaters; one specified the size as 40 gallons; the other did not know the size. Two customers surveyed have solar photovoltaic systems; one specified the size as 3' by 6'; the other specified 3' by 4'.

Table 41. Electric Vehicles and Solar Power

	Read MyHER		Compared to Others			Overall (N=249)
	Read (N≈237)	Throw Away (N=12)	Do More (N=112)	Same (N=102)	Do Less (N=25)	
Own an electric vehicle	3.4%	0.0%	5.4%	0.0%	0.0%	3.2%
Solar water heating system	0.8%	0.0%	0.9%	1.0%	0.0%	0.8%
Solar photovoltaic system (solar panels)	0.8%	0.0%	1.8%	0.0%	0.0%	0.8%

Those who "don't know" how they compare to others are not shown in this table.

Conclusions and Recommendations for Program Changes

The Home Energy Report provides Duke Energy residential customers with a meaningful comparison of their home's energy use compared to other homes similar to their own.

TecMarket Works presents the following recommendations for program changes.

1. Add CFL coupons to the MyHER mailing, if it can be shown that the participants can use additional CFLs that they are not likely to purchase on their own. Customers who use the coupons will show that they are reading the MyHER, are open to the messages and tips, and possibly to solicitations for participation in other Duke Energy programs. The number of redeemed coupons can also be utilized in the billing analysis and allow for engineering estimates of energy savings.

2. Some surveyed customers suggested including the number of people in the household as a factor in drawing comparisons with other homes, since more people living in a home does correspond to more energy usage. Duke Energy should consider adding this variable to the comparison group clustering algorithm and reporting household size on reports along with other facts about comparison groups. Doing so may help to increase the perceived accuracy of the home energy use comparisons in the minds of these customers. Although, such a potential advantage should be weighed against the data collection and programming required to add such a factor to the clustering methodology.

3. Since participation in other Duke Energy efficiency programs is twice as high among MyHER report readers compared to those who throw the reports away, the messaging section on the second page of the reports presents an opportunity to communicate directly with a segment of customers who are particularly inclined toward participating in additional programs. Consider replacing more of the general efficiency messages on the second page of the report with more specific marketing messages for other Duke Energy programs.

Appendix A: Required Savings Table

The required table showing measure-level participation counts and savings for each program is below.

Measure	Participation Count	Verified Per unit kWh impact	Verified Per unit kW impact	Gross Verified kWh Savings	Gross Verified kW Savings
MyHER Report	261,028	220	0.0674	220	0.0674

Appendix B: Program Manager Interview Instrument

Name: _____

Title: _____

We are conducting this interview to obtain your opinions about and experience with the [STATE NAME] My Home Energy Report Program. We'll talk about the Program and its objectives, your thoughts on improving the program and its participation rates, and the technologies the program covers. Do you have any questions before we begin?

PROGRAM DESCRIPTION

In your own words, please describe the [STATE NAME] My Home Energy Report Program.

Please discuss the history and development of the program. What was the influence of HECR pilot on the full program? How has MyHER changed since the pilot phase?

Why did Duke Energy chose to use vendors instead of launching this as an in house commercialized project as you did for the pilots? What were the pros and cons of using vendors vs. doing it in-house? How did using vendors change program design and program implementation?

What are the current program's objectives? That is, what is the program trying to accomplish (e.g. generate energy savings via behavior change, installation of efficiency devices, enrollment in other programs, non-energy benefits)? In your opinion, which objectives do you think are being met or will be met? Have the objectives changed over time. If yes, how do you think they have changed?

Are there any program objectives that are not being addressed or that you think should have more attention focused on them? If yes, which ones? How should these objectives be addressed? What should be changed? How will these changes improve the program? Would it improve customer satisfaction, lower program costs or delivery a better product to customers?

Should the program objectives be changed in any way because of market conditions, other external or internal program influences, or any other conditions that have developed since the program objectives were devised? What changes would you put into place, and how would it affect the objectives?

How many households receive the MyHER report in [service territory]?

What are the program requirements for inclusion/participation? Does MyHER go to renters as well as homeowners? Why or why not?

What kinds of marketing, outreach and customer contact approaches do you use to make your customers aware of the program and its options?

Why is the program designed as opt out and not opt in? How have customers responded to this? How many (what percentage) have opted out? How are customers informed about their opt out choice? What are the steps they need to take to opt out? Conversely, how does the program handle customers who want to opt in?

Since the opt-out nature of the program naturally brings together different types of customers into one large pool, are the customers segmented after inclusion? For instance, does MyHER go to residential customers of different rate classes beyond standard, such as TOU? If so, how is this differentiated?

What are the program's goals? That is, what goals and metrics are you tasked with achieving (such as energy savings targets, numbers of new enrollments, numbers of installs, website visits, etc.)? What is the current performance towards these targets?

Are there any program changes that you think would improve the program's performance towards its goals and objectives?

PROGRAM MANAGEMENT AND OPERATIONS

Please describe your role and scope of responsibility in detail. What is it that you are responsible for as it relates to this program? When did you take on this role? If a recent change in management…Do you feel that Duke Energy gave you enough time to adequately prepare to manage this program? Did you get all the support that you needed to manage this program?

Please review with us how the My Home Energy Report Program operates relative to your duties, that is, please walk us through the processes and procedures and key events that allow you do currently fulfill your duties.

Have any recent changes been made to your duties? If so, please tell us what changes were made and why they were made. What are the results of the change?

Is there any other person or group within Duke Energy that you work with on the implementation of this program? Who is that and what role do they serve?

Which third parties or vendors do you work with to implement this program? Please describe their roles in the implementation of the program.

How effective is the vendor in its assigned role? What works well? What could be improved? (Repeat for each third party vendor.)

How often and in what form do you communicate with the vendors? How would you characterize your working relationships?

How do you manage and monitor or evaluate third-party involvement or performance? What do you do if contractor performance is exemplary or below expectations?

Describe the use of any advisors, technical groups or organizations that have in the past or are currently helping you think through the program's approach or methods. How often do you use them? What do you use them for?

PROGRAM IMPLEMENTATION

What information, research or assessments are you using to identify barriers and to develop more effective approaches/mechanisms for achieving program goals?

Can you cite any market, operational or technical barriers that impede a more efficient program operation? Please describe.

How does the program accommodate that customers may become eligible and ineligible at any time? Please describe the process used for forecasting participation and production. How are differences between forecasts and actual numbers adjusted?

Overall, what about the My Home Energy Report Program works well and why?

Do you have any suggestions for how program performance toward goals can be increased?

In what ways can the My Home Energy Report Program's operations be improved?

If you could change any part of the program what would you change and why?

What are your quality assurance measures? What have those efforts uncovered?

REPORT GENERATION AND DELIVERY

Please describe the process by which the reports are actually generated and distributed.

Please describe any challenges or quality concerns with the report generation and delivery process.

In what format are reports delivered? Why was it chosen? What other formats were considered? How has it been working out?

How was the current report delivery schedule determined? How has it been working? Any challenges? Any changes made or planned?

COMPARISONS

Now let's look more closely at the actual home energy reports and the process that you use to generate them. More specifically let's discuss the framework for scoring homes and the comparisons between similar homes.

The reports compare the customer's energy usage with other customers. My notes indicate that the pilot considered homes that are similar in four main characteristics: heat source, square footage, age of home, and number of occupants. Is this true of the current program? How are each of these characteristics defined?

Another factor is geography. How is that accounted for?

Where does the data for these comparisons come from?

How are similar homes actually identified and grouped?

What is the range of sample sizes used for comparison? What is the smallest allowable pool for comparison? What is the largest? Why these limits?

Once the comparison pool is established, it is my understanding that the customer's energy usage is calculated and compared to the pool average and to the most efficient homes in the comparison pool. Is this correct?

How is the individual customer home's monthly energy use figure generated?

How is the average home's energy usage determined within the pool of comparable homes?

How is the efficient home's usage determined? What percentage of households is considered efficient? How is this group determined? How do you control for households with unusually low or high usage?

Is the program making an attempt to verify information about the home characteristics used for comparisons? During an earlier evaluation of PER, Kelly Griffin mentioned that PER data was considered to be more accurate than public records because it was self-generated by the customer. Is this type of data being incorporated into the program? If so, how?

Is the energy usage figure different from the comparison score? If so, how? How is the comparison score generated? How is the score adjusted for variations in house attributes such as age, size, heat source, and number of occupants within the pool? Are there other adjustments?

The pilot evaluation in OH discussed single month scores versus long term scores. Please explain the difference, tell me which you use now and why. Are there any drawbacks? What are they? How are they addressed?

Can you suggest any ideas for improving the comparisons used by the program?

DATA PRESENTATION

The data presented in the reports is designed to drive energy savings. On what research or communications principles (such as social norms, psychology, logic, persuasion, etc.) did you base your decisions for how to present the data?

How do you establish the context of your data presentation? For instance, the data can be presented in terms of saving energy, saving money, helping the environment, etc. How do you present the concept of reducing energy use and why do you this approach?

Why is monthly energy use presented in dollars and not kWh?
How is the influence of data presentation measured or otherwise accounted for?

The pilot evaluation considered questions about layout, language, and other data presentation. How were those findings incorporated into the current format? What changes have been made since the roll out? Is further testing being conducted? Are additional changes planned? If so, what are those changes?

When did you change from one to two page reports? Why did this happen? What was the impact of the change? How do you know?

Have you made any other changes to the way you present the data? If so why? What was done?

Can you suggest any ideas for improving the data presentation aspect of the program?

ENERGY SAVING TIPS AND MESSAGES

What is the difference between an energy saving tip and a message?

How are energy savings tips and messages generated?

Do you draw a distinction between encouraging persistent behaviors and taking action to be more efficient? That is, do you make a distinction between repeated behaviors such as turning off or unplugging and one time actions such as the purchase and installation of equipment that is more efficient? If so how? Which are you driving toward? Why? How? Please provide examples.

How do you ensure the tips are relevant to the household in question? For instance, are tips different for renters than homeowners, older homes versus newer homes, for pool owners vs. people without pools, or for people who are already enrolled in other Duke Energy programs?

The pilot evaluation mentions concerns about the ability to determine which tips are presented to which customers and when. Is this still true? If so, why? If so, what do you do about it? If not, what was changed? How has this change improved things?

Part of the challenge of presenting an on-going report is maintaining customer interest and driving continued energy savings. How do you address this consideration? For instance, the Ohio pilot evaluation states "While tips directly aimed at energy savings are necessary to supplement social norm messaging, it may be useful to include other relevant and interesting facts so that customers continue to be engaged and interested." How is this addressed? How do you keep tips fresh for people who have been the program for a while?

In addition to driving customers to take energy savings actions, the reports also prompt customers to take other behaviors such as visiting the MyHER website. Why get them to visit the website? What are you trying to achieve?

Is Duke Energy tracking website visits? Are you making a distinction between program participants who only receive the reports and participants who also visit the website? If so, how are you separating and attributing energy impacts? Do you have a big enough sample size to address this question?

Can you suggest any changes or improvements to this aspect of the program?

Please provide a list of tips presented to customers in [STATE NAME].

CUSTOMER RESPONSE

How many (what percentage of) recipients are reading the MyHER reports? How is the level of readership determined? How often is it measured? How has it changed over time?

Do you assess, track or measure customer reaction to the reports? If so, how? How do customers respond to the reports? What differences and similarities do you find among their responses?

Are you measuring the effectiveness of your data presentation? If so, how? What are you finding? How effective are the home energy comparisons? How do you know?

Besides website visits, are there other customer interactions you are trying to drive, like other program enrollments? If so, which programs and why? How does that work?

DATA COLLECTION AND ENERGY SAVINGS

How does Duke Energy track and attribute energy savings?

Does the program differentiate between energy savings generated via repeated conservation behaviors (turn off lights, wash in cold water, wash full loads, etc.) and one time improvements in efficiency, such as CFLs, new appliances, adding insulation, new HVAC, etc.? If not, why? If so, how? If so, does the program investigate synergies between the two?

Can and do you track savings by individual behavior or action? Which behaviors or actions does the program seek to encourage? Why those? How do you measure them?

Can and do you track attribution of actions that are high energy savings/no cost to Duke such the purchase of new appliances?

How does the program address persistence of energy saving? How long are impacts from this program projected to last?

How do you handle enrollments by new customers? In what month do you begin counting energy savings? (e.g. the month they become eligible to join, or the next month after their first report.)

How do you analyze the data you collect? Do you segment the data in any way, such as by household characteristics, timing, message, rate class, change in usage etc.? Which groups are returning the greatest savings? The least? What does Duke Energy do with the data it collects?

How are customer scores changing over time? How do you know? For instance, do you compare to previous individual household usage info or changes relative to the average and efficient home? What percentage of customers is improving? Are they trying? How do you know?

Since program launch has Duke Energy conducted any testing, such as messages, tips, promotions, coupons, timing, etc.?

The nature of the MyHER program is one of energy use comparisons. Do you track or measure the influence of other exchanges that customers may be having beyond receiving the energy reports, such as conversions occurring via social media? If so, how? What are you finding?

Can you suggest any changes or improvements to this aspect of the program?

CLOSING SUGGESTIONS AND COMMENTS

If you could change anything else about the program, what would you change and why?

Are there any other issues or topics you think we should know about and discuss for this evaluation?

Is there anyone else that I should speak with to better complete this evaluation?

Appendix C: Vendor Interview Instrument

Name: _____

Title: _____

We are conducting this interview to obtain your opinions about and experiences with the [STATE NAME] My Home Energy Report program. We'll talk about the program and its objectives, your thoughts on improving the program, and the technologies the program covers. The purpose of this study is to capture the program's current operations as well as help identify areas where the program might be improved. Your responses will feed into a report that will be shared with Duke Energy and the state regulatory agency. I want to assure you that the information you share with me will be kept confidential; we will not identify you by name. However, you may provide some information or opinions that could be attributed to you by virtue of your position and role in this program. If there is sensitive information you wish to share, please warn me and we can discuss how best to include that information in the report. Do you have any questions for me before we begin?

OVERVIEW

In your own words, please describe the [STATE NAME] My Home Energy Report Program.

Please describe your organization's role and scope of responsibility in the implementation of this program.

How does the way your company implements this program for Duke Energy differ from other implementations your company provides for other utilities?

What is it that you are personally responsible for as it relates to this program? When did you take on this role? If a recent change in management, do you feel that Duke Energy gave you enough time to adequately prepare to manage this program? Did you get all the support that you needed to manage this program?

Please review with us how the [STATE NAME] MyHER program operates relative to your duties, that is, please walk us through the processes and procedures and key events that allow you do currently fulfill your duties.

Have any recent changes been made to your duties? If so, please tell us what changes were made, when, and why they were made. What are the results of the change?

Is there any other person or group within Duke Energy that you work with on the functioning of this program? Who is that and what role do they serve?

PROGRAM GOALS AND OBJECTIVES

In your own words, please describe the [STATE NAME] MyHER program's current objectives. That is, what is the program trying to accomplish (e.g. generate energy savings via behavior change, installation of efficiency devices, enrollment in other programs, non-energy benefits)? In your opinion, which objectives do you think are being met or will be met? Have the objectives changed over time. If yes, how do you think they have changed?
Are there any program objectives that are not being addressed or that you think should have more attention focused on them? If yes, which ones? How should these objectives be addressed? What should be changed? How will these changes improve the program? Would it improve customer satisfaction, lower program costs or delivery a better product to customers?

Should the program objectives be changed in any way because of market conditions, other external or internal program influences, or any other conditions that have developed since the program objectives were devised? What changes would you put into place, and how would it affect the objectives?

What are the program's goals? That is, what targets is the overall program set to achieve?

How is program progress against these goals measured? Do you know the current performance against these goals? Which goals are being met or will be met?

What specific metrics is your company tasked with achieving? How is your company's performance relative to your goals?

Describe your quality control and tracking process.

OTHER VENDOR AND DUKE ENERGY ASSESSMENT

(If not captured earlier) Please explain how the interactions between Duke Energy, your company and another other vendors work. Who within Duke Energy and which others vendors do you work with to implement this program? Please describe their roles, relative to you company's, in the implementation of the program.

How effective are they in their assigned role? What works well? What could be improved? *(Repeat for each group.)*

Do you think these interactions should be changed in any way? If so, how and why?

How often and in what form do you communicate with Duke Energy and other vendors? How would you characterize your working relationships?

Are key industry experts, trade professional or peer used to identify program enhancements, cost reduction opportunities or process improvements? If so, how does this work?

Are key industry experts and trade professionals used in other advisory roles such as market or marketing experts or industry professionals? If so how does this work and what kind of support is obtained?

OVERALL STRENGTHS, NEEDS, AND SUGGESTIONS

Overall, what about the [STATE NAME] MyHER program works well and why?

What doesn't work well and why? Do you think this discourages customer acceptance or the quality of the offer to the customer?

Do you have suggestions for improvements to the program that would increase offer quality, customer interest or lower costs?

Do you have suggestions for the making the program operate more smoothly or effectively?

Do you have suggestions for improving or increasing energy impacts?

OPERATIONAL, MARKET, & TECHNICAL BARRIERS AND SUGGESTIONS

What information, research or assessments are you using to identify barriers to implementation and develop more effective ways to deliver this program?

Can you identify any market, operational or technical barriers that impede a more efficient program operation?

Anything on the horizon that you think will impact the energy savings generated by this program?

In what ways can program operations or operational efficiencies be improved?

INCREASING READERSHIP AND CUSTOMER ACTIONS (SUGGESTIONS)

In what ways can the program increase the number of customers who read the reports and take energy saving actions?

In what ways can the program encourage customers to follow the recommended energy saving actions?

CLOSING SUGGESTIONS AND COMMENTS

If you could change anything else about the program, what would you change and why?

Are there any other issues or topics you think we should know about and discuss for this evaluation?

Is there anyone else that I should speak with to better complete this evaluation?

Appendix D: MyHER Customer Survey Instrument

State
( ) Indiana
( ) Kentucky
( ) Ohio
( ) North Carolina
( ) South Carolina

Info
Surveyor Name: _____
Survey ID: _____

Month & Year customer started getting MyHER reports (from calling sheet)

_____

Use four attempts at different times of the day and different days before dropping from contact list. Call times are from 10:00 a.m. to 8:00 p.m. EST or 9-7 CST Monday through Saturday. No calls on Sunday. (Target: 250 per state)

Note: Only read aloud words in bold type.
Instructions are in italics.

Introduction

for answering machine 1st through penultimate attempts:
Hello, my name is _____ . I am calling to conduct a customer survey, on behalf of Duke Energy. I'm sorry I missed you. I'll try again another time.

for answering machine - Final Attempt:
Hello, my name is _____ . I am calling to conduct a customer survey, on behalf of Duke Energy. This is my last attempt at reaching you, my apologies for any inconvenience.

if person answers
Hello, my name is _____ . I am calling to conduct a customer survey, on behalf of Duke Energy. May I speak with _____ please?

If person talking, proceed. If person is called to the phone reintroduce.
If not home, ask when would be a good time to call and schedule the call-back:

We are conducting this survey to obtain your opinions about the My Home Energy Report. Our records indicate that you have been receiving the Home Energy Report in the mail from Duke Energy. We are not selling anything. Your answers will be confidential, and if you qualify for the survey we will send you $20 for your time today. The survey will take about 30 minutes. May we begin the survey?

Note: If this is not a good time, ask if there is a better time to schedule a callback.

1. Do you remember receiving the Home Energy Reports in the mail from Duke Energy since *(Month and Year of first report)* **?**
    ( ) Yes
    ( ) No
    ( ) DK/NS

If No or DK/NS, ask:
1a. This program provided information on how much electricity you used in the previous month and in the previous 12 months compared to your neighbors and provided tips on how you could lower your electricity use and costs in becoming more energy efficient.

Do you remember receiving these reports now?
    ( ) Yes
    ( ) No
    ( ) DK/NS

If No or DK/NS terminate interview and go to next participant.

2. What do you do with the Home Energy Report when you receive it?
(Mark all that apply)
    [ ] I read it.
    [ ] Someone else in the house reads it
    [ ] Throw it away/ignore it
    [ ] Other

If customer does not read it, but someone else in the house reads it, ask:

Can I talk to that person?
If another person does take the call, go back to Introduction.
or
Schedule callback if necessary, and do survey from beginning at that time.
or
Continue with person you are talking to if that is what they wish.

If answer to q2 is 'I read it', ask:
2a. Why do you read the Home Energy Report?
(Mark all that apply)
    [ ] It is from Duke Energy
    [ ] I am interested in learning how my household is using energy
    [ ] I am interested in learning more about how to save energy
    [ ] I am interested in learning more about climate change or environmental reasons
    [ ] Avoid increases in power costs or lower rates
    [ ] Other

[ ] DK/NS

If answer to q2 is "Throw it away/ignore it", ask:
2b. Why do you throw it away or ignore it?
(Mark all that apply)
    [ ] I'm too busy/don't have time
    [ ] It's too confusing
    [ ] I don't believe it's accurate for my household
    [ ] I've done all the tips it suggests
    [ ] I'm already doing the best that I can
    [ ] I do not care about energy savings or use
    [ ] I don't use very much energy
    [ ] Too low a priority for me
    [ ] Other
    [ ] DK/NS

If answer to q2 is "Throw it away/ignore it", ask:
2c. Did you always ignore the report, or did you read some but have since stopped?
    ( ) Never read them
    ( ) I read some *ask:* **About how many did you read? :** _____
    ( ) DK/NS

3. When you consider the efforts that you and your household are currently making to decrease energy consumption at your home, do you feel that on average your efforts are less than what others typically do, about the same as what others typically do, or more than what others typically do?
    ( ) Less than others
    ( ) About the same
    ( ) More than others
    ( ) DK/NS

3a. Now think back to the time before you began receiving the Home Energy Report. At that time, would you say your efforts to decrease energy consumption were less than what others were typically doing, about the same, or more than what others were typically doing?
    ( ) Less than others
    ( ) About the same
    ( ) More than others
    ( ) DK/NS

3b. Of the following four statements, which best characterizes the degree of difference between your earlier actions and your more recent efforts?
    ( ) We used to do less, but now we are doing more.
    ( ) We used to do more, but now we are doing less.
    ( ) I think we were already doing more than others, but we're doing even more now.
    ( ) About the same

( ) DK/NS

4. In your own words, please tell me what it means to be energy efficient.

5. When you think about what you and your household does or can do to decrease energy consumption, what things come to mind?
after each answer, ask:? **Anything else?**
(repeat until exhausted)
a.: _____
b.: _____
c.: _____
d.: _____
e.: _____

If more than five answers to q5, put spillover here:

6. Using a 1 to 10 scale with 1 meaning "very uninterested" and 10 meaning "very interested", what is your level of interest in saving energy in your home?
( ) 1
...
( ) DK/NS

7. Using the same 1 to 10 scale with 1 meaning "very uninterested" and 10 meaning "very interested", what is your level of interest in reading your next report?
( ) 1
...
( ) 10
( ) DK/NS

8. Would you like to receive these reports more frequently, less frequently, or at the same frequency they are now being sent to you?
If they ask, tell them that Reports are sent about 8 times a year.
( ) More frequently
( ) Less frequently
( ) Same frequency
( ) Don't want to get any
( ) DK/NS

If q8 is 'more' or 'less', ask:
8a: How often would you prefer to get the reports?
( ) Daily
( ) Weekly
( ) Monthly
( ) Every other month
( ) Few times a year/quarterly
( ) Annually

( ) Other
( ) DK/NS

8b. Would you prefer to get the reports electronically through email?
( ) Yes
( ) No
( ) DK/NS

If they never read the reports, Skip to question 21.

9. You received multiple tips on how to save energy on the Home Energy Reports. Do you recall what any of the tips were?
( ) Yes
( ) No
( ) DK/NS

If No or DK/NS, skip to question 13

If yes to q9, ask:
10. What tip do you remember? *{Tip1}*

_____

10z. Did the customer get this tip in a report?
( ) Yes
( ) No
( ) DK/NS

If remembered a tip in q10, ask:
11. Do you remember any other tip? *{Tip2}*

_____

11z. Did the customer get this tip in a report?
( ) Yes
( ) No
( ) DK/NS

If remembered a tip in q11, ask:
12. Do you remember any other tip? *{Tip3}*

_____

12z. Did the customer get this tip in a report?
( ) Yes
( ) No
( ) DK/NS

Ask questions 10a to 10m for the tip indicated in response to question 10.
Tip 1:

10a. Using a 1 to 10 scale with 1 meaning your reaction to the tip *{Tip1}* was very unfavorable and 10 meaning your reaction was very favorable, please tell me about your reaction to this tip.

    ( ) 1
    ...
    ( ) 10
    ( ) DK/NS

10b. Did you feel that this tip was believable, that is, that it really could help you reduce your energy consumption?

    ( ) Yes
    ( ) No *ask: 10c.* What about it was not believable?: _____
    ( ) DK/NS

10d. Did you do anything to your home/behavior in response to this tip?

    ( ) Yes
    ( ) No
    ( ) DK/NS

If no to q10d, ask:
10e. Do you plan to do anything in response to this tip?

    ( ) Yes *ask:* 10f. When? _____
    ( ) No
    ( ) DK/NS

If yes to q10d, ask:
10g. What did you do?

10h. Are you satisfied with the results of following the tip?

    ( ) Yes
    ( ) No
    ( ) DK/NS
    ( ) Other _____

10i. Please answer the following question as best you can: How much money do you think you saved each month as a result of the changes?

    ( ) None
    ( ) amount _____
    ( ) DK/NS

10j. Do you happen to know the actual amount of energy that was saved?

    ( ) Yes: _____
    ( ) No

( ) DK/NS

( ) Other _____

10k. Do you think the changes you made resulted in increased or decreased comfort in your home, or did it stay the same?

( ) Increased comfort

( ) Decreased comfort

( ) Stayed the same

( ) DK/NS

10m. Please indicate how influential the Home Energy Report was to your decision to take this action using a 1 to 10 scale with 1 meaning the report had no influence and you would have taken this action, and 10 meaning that the report was very influential and that you would not have taken this action without reading the tip on the Report.

( ) 1

...

( ) 10

( ) DK/NS

( ) Didn't Take the Action

Ask questions 11a to 11m for the tip indicated in response to question 11.
Tip 2:

11a. Using a 1 to 10 scale with 1 meaning your reaction to the tip *{Tip2}* was very unfavorable and 10 meaning your reaction was very favorable, please tell me about your reaction to this tip.

( ) 1

...

( ) 10

( ) DK/NS

11b. Did you feel that this tip was believable, that is, that it really could help you reduce your energy consumption?

( ) Yes

( ) No *ask: 11c.* **What about it was not believable?**: _____

( ) DK/NS

11d. Did you do anything to your home/behavior in response to this tip?

( ) Yes

( ) No

( ) DK/NS

If no to q11d, ask:
11e. Do you plan to do anything in response to this tip?

( ) Yes *ask:* **11f. When?** : _____

( ) No
( ) DK/NS

If yes to q11d, ask:
11g. **What did you do?**

11h. **Are you satisfied with the results of following the tip?**
    ( ) Yes
    ( ) No
    ( ) DK/NS
    ( ) Other _____

11i. **Please answer the following question as best you can: How much money do you think you saved each month as a result of the changes?**
    ( ) None
    ( ) amount: _____
    ( ) DK/NS

11j. **Do you happen to know the actual amount of energy that was saved?**
    ( ) Yes: _____
    ( ) No
    ( ) DK/NS
    ( ) Other _____

11k. **Do you think the changes you made resulted in increased or decreased comfort in your home, or did it stay the same?**
    ( ) Increased comfort
    ( ) Decreased comfort
    ( ) Stayed the same
    ( ) DK/NS

11m. **Please indicate how influential the Home Energy Report was to your decision to take this action using a 1 to 10 scale with 1 meaning the report had no influence and you would have taken this action, and 10 meaning that the report was very influential and that you would not have taken this action without reading the tip on the Report.**
    ( ) 1
    ...
    ( ) 10
    ( ) DK/NS
    ( ) Didn't Take the Action

Ask questions 12a to 12m for the tip indicated in response to question 12.
Tip 3:

12a. Using a 1 to 10 scale with 1 meaning your reaction to the tip *{Tip3}* was very
unfavorable and 10 meaning your reaction was very favorable, please tell me about your
reaction to this tip.
    ( ) 1
    ...
    ( ) 10
    ( ) DK/NS

12b. Did you feel that this tip was believable, that is, that it really could help you reduce
your energy consumption?
    ( ) Yes
    ( ) No *ask: 12c.* What about it was not believable? _____
    ( ) DK/NS

12d. Did you do anything to your home/behavior in response to this tip?
    ( ) Yes
    ( ) No
    ( ) DK/NS

If no to q12d, ask:
12e. Do you plan to do anything in response to this tip?
    ( ) Yes *ask:* 12f. When? _____
    ( ) No
    ( ) DK/NS

If yes to q12d, ask:
12g. What did you do?

12h. Are you satisfied with the results of following the tip?
    ( ) Yes
    ( ) No
    ( ) DK/NS
    ( ) Other _____

12i. Please answer the following question as best you can How much money do you think
you saved each month as a result of the changes?
    ( ) None
    ( ) amount _____
    ( ) DK/NS

12j. Do you happen to know the actual amount of energy that was saved?
    ( ) Yes _____
    ( ) No
    ( ) DK/NS
    ( ) Other _____

12k. Do you think the changes you made resulted in increased or decreased comfort in your home, or did it stay the same?

( ) Increased comfort
( ) Decreased comfort
( ) Stayed the same
( ) DK/NS

12m. Please indicate how influential the Home Energy Report was to your decision to take this action using a 1 to 10 scale with 1 meaning the report had no influence and you would have taken this action, and 10 meaning that the report was very influential and that you would not have taken this action without reading the tip on the Report.

( ) 1
...
( ) 10
( ) DK/NS
( ) Didn't Take the Action

13. Did you feel that the tips included on the report were relevant and applied to you and your household?

( ) Yes
( ) No
( ) DK/NS

If no to q13, ask:
13a. Do any specific tips stand out to you as <u>not applying</u> to you or your house? Why?
after each answer, ask: Any others? Why?

1: _____
2: _____
3: _____

14. The report presented a comparison of your home energy usage to that of similar homes. As part of the comparison, the report provides detailed information regarding which homes yours is being compared to, including the number of homes, the age and size of the homes, and the type of heating they use. Using a 1 to 10 scale with 1 meaning this comparison was not at all reasonable or appropriate and 10 meaning it was very reasonable or appropriate, how did you find this comparison?

( ) 1
...
( ) 10
( ) DK/NS

15. Using a 1 to 10 scale with 1 meaning this comparison was not at all useful and 10 meaning it was very useful, how useful did you find this comparison?

    ( ) 1
    ...
    ( ) 10
    ( ) DK/NS

16. How does your home's energy use compare, does your report show that you usually use more than the average home, less than the average home or about the same as average?
    ( ) More than average
    ( ) About the same
    ( ) Less than average
    ( ) DK/NS

17. Do you use the charts to track your home's energy usage?
    ( ) Yes
    ( ) No
    ( ) DK/NS

18. Are you trying to improve how your home efficiency compares to your neighbors?
    ( ) Yes
    ( ) No
    ( ) DK/NS

19. Are the characteristics such as your home size and age correct on your report?
    ( ) Yes
    ( ) No *ask:* 19a. What is incorrect? _____
    ( ) DK/NS

20. Did you move into a new home since *(The Month & Year the customer began getting reports.)*?
    ( ) Yes *ask:* 20a. When did you move? _____
    ( ) No

21. Since *(Month and Year of first report)*, have you done anything else to save electricity in your home that was not included as a tip contained in the Home Energy Reports?
    ( ) Yes
    ( ) No
    ( ) DK/NS

If yes to q21, ask:
21a. What have you done?
after each answer, ask: **Anything else?**
Get details on what was done and when. Leave blank if they reply "Nothing else".

1: _____
2: _____
3: _____

The following questions ask you to tell us if you did anything in a particular category. We may ask you to duplicate some information you already gave us, but please do tell us again because we want to get more details in each category.

Home Appliances

Repeat the series "did you take any steps..." If Yes "how much influence the MyHER report was..." up to three times
22. Since receiving your first Home Energy Report did you take any steps to <u>reduce</u> the amount of energy used by your home appliances, such as removing a second refrigerator or upgrading old appliances?
  ( ) Yes *ask:* What have you done? _____
  ( ) No
  ( ) DK/NS

22a. Please tell us how much influence the MyHER report was on your decision to take this step, was it...
(read answers aloud, select only one)
  ( ) the main reason,
  ( ) one reason among several, but not the main reason, or
  ( ) it did not have an influence
  ( ) DK/NS

22b. Did you do anything else to <u>reduce</u> the amount of energy used by your home appliances?
  (since receiving the 1st report.)
  ( ) Yes *ask:* What have you done? _____
  ( ) No
  ( ) DK/NS

22c. Please tell us how much influence the MyHER report was on your decision to take this step, was it...
  ( ) the main reason,
  ( ) one reason among several, but not the main reason, or
  ( ) It did not have an influence
  ( ) DK/NS

22d. Did you do anything else to <u>reduce</u> the amount of energy used by your home appliances?
  (since receiving the 1st report.)
  ( ) Yes *ask:* What have you done? _____
  ( ) No

( ) DK/NS

If yes,
22e. **Please tell us how much influence the MyHER report was on your decision to take this step, was it...**
( ) **the main reason,**
( ) **one reason among several, but not the main reason, or**
( ) **It did not have an influence**
( ) DK/NS

22f. **Did you do anything that might have <u>increased</u> the energy usage by your appliances? An example of increasing your home appliance energy use would be to add another appliance, such as a new freezer.**
( ) Yes
( ) No
( ) DK/NS

If yes to q22f, ask:
22g. **What have you done?**
after each answer, ask: **Anything else?**
Get details on what was done and when.
1: _____
2: _____
3: _____

Home Cooling

Repeat the series "did you take any steps..." If Yes "how much influence the MyHER report was..." up to three times
23. **Since receiving your first Home Energy Report did you take any steps to <u>reduce</u> the amount of energy used to cool your home?**
( ) Yes *ask:* **What have you done?** _____
( ) No
( ) DK/NS

23a. **Please tell us how much influence the MyHER report was on your decision to take this step, was it...**
(read answers aloud, select only one)
( ) **the main reason,**
( ) **one reason among several, but not the main reason, or**
( ) **It did not have an influence**
( ) DK/NS

23b. **Did you do anything else to <u>reduce</u> the amount of energy used to cool your home?**
(since receiving the 1st report.)
( ) Yes *ask:* **What have you done?** _____

( ) No
( ) DK/NS

23c. Please tell us how much influence the MyHER report was on your decision to take this step, was it...
( ) the main reason,
( ) one reason among several, but not the main reason, or
( ) It did not have an influence
( ) DK/NS

23d. Did you do anything else to <u>reduce</u> the amount of energy used to cool your home?
(since receiving the 1st report.)
( ) Yes *ask:* **What have you done?** _____
( ) No
( ) DK/NS

If yes,
23e. Please tell us how much influence the MyHER report was on your decision to take this step, was it...
( ) the main reason,
( ) one reason among several, but not the main reason, or
( ) It did not have an influence
( ) DK/NS

23f. Did you do anything that might have <u>increased</u> the energy used to cool your home? An example of something that might increase your energy use is to purchase a larger AC unit, as opposed to a new one of similar size.
( ) Yes
( ) No
( ) DK/NS

If yes to q23f, ask:
23g. What have you done?
after each answer, ask: **Anything else?**
Get details on what was done and when.
1: _____
2: _____
3: _____

Home Heating

Repeat the series "did you take any steps..." If Yes "how much influence the MyHER report was..." up to three times
24. Since receiving your first Home Energy Report did you take any steps to <u>reduce</u> the amount of energy used to heat your house?
( ) Yes *ask:* **What have you done?** _____

( ) No
( ) DK/NS

24a. Please tell us how much influence the MyHER report was on your decision to take this step, was it...
(read answers aloud, select only one)
        ( ) the main reason,
        ( ) one reason among several, but not the main reason, or
        ( ) It did not have an influence
        ( ) DK/NS

24b. Did you do anything else to <u>reduce</u> the amount of energy used to heat your house?
(since receiving the 1st report.)
        ( ) Yes *ask:* What have you done? _____
        ( ) No
        ( ) DK/NS

24c. Please tell us how much influence the MyHER report was on your decision to take this step, was it...
        ( ) the main reason,
        ( ) one reason among several, but not the main reason, or
        ( ) It did not have an influence
        ( ) DK/NS

24d. Did you do anything else to <u>reduce</u> the amount of energy used to heat your house?
        ( ) Yes *ask:* What have you done? _____
        ( ) No
        ( ) DK/NS

If yes,
24e. Please tell us how much influence the MyHER report was on your decision to take this step, was it...
        ( ) the main reason,
        ( ) one reason among several, but not the main reason, or
        ( ) It did not have an influence
        ( ) DK/NS

24f. Did you do anything that might have <u>increased</u> the amount of energy you use to heat your home? An example of a change that would increase the energy used is if you purchased a larger heat pump.
        ( ) Yes
        ( ) No
        ( ) DK/NS

If yes to q24f, ask:
24g. What have you done?

after each answer, ask: **Anything else?**
Get details on what was done and when.

1: _____

2: _____

3: _____

Home Lighting

Repeat the series "did you take any steps..." If Yes "how much influence the MyHER report was..." up to three times

25. Since receiving your first Home Energy Report did you take any steps to <u>reduce</u> the amount of energy used to light your home?

( ) Yes *ask:* **What have you done?** _____

( ) No

( ) DK/NS

25a. Please tell us how much influence the MyHER report was on your decision to take this step, was it...

(read answers aloud, select only one)

( ) **the main reason,**

( ) **one reason among several, but not the main reason, or**

( ) **It did not have an influence**

( ) DK/NS

25b. Did you do anything else to <u>reduce</u> the amount of energy used to light your home?
(since receiving the 1st report.)

( ) Yes **What have you done?** _____

( ) No

( ) DK/NS

25c. Please tell us how much influence the MyHER report was on your decision to take this step, was it...

( ) **the main reason,**

( ) **one reason among several, but not the main reason, or**

( ) **It did not have an influence**

( ) DK/NS

25d. Did you do anything else to <u>reduce</u> the amount of energy used to light your home?
(since receiving the 1st report.)

( ) Yes *ask:* **What have you done?** _____

( ) No

( ) DK/NS

If yes,
25e. Please tell us how much influence the MyHER report was on your decision to take this step, was it...

( ) the main reason,
( ) one reason among several, but not the main reason, or
( ) It did not have an influence
( ) DK/NS

25f. Did you do anything that may have <u>increased</u> the amount of energy used to light your home? An example of increasing the energy used to light your home would be adding new inside light fixtures or outdoor flood lights.
        ( ) Yes
        ( ) No
        ( ) DK/NS

If yes to q25f, ask:
25g. What have you done?
after each answer, ask: Anything else?
Get details on what was done and when.
        1: _____
        2: _____
        3: _____

Home Computers or Electronics

Repeat the series "did you take any steps..." If Yes "how much influence the MyHER report was..." up to three times
26. Since receiving your first Home Energy Report did you take any steps to <u>reduce</u> the amount of energy used by home computers or electronics?
        ( ) Yes *ask:* What have you done? _____
        ( ) No
        ( ) DK/NS

26a. Please tell us how much influence the MyHER report was on your decision to take this step, was it...
(read answers aloud, select only one)
        ( ) the main reason,
        ( ) one reason among several, but not the main reason, or
        ( ) It did not have an influence
        ( ) DK/NS

26b. Did you do anything else to <u>reduce</u> the amount of energy used by home computers or electronics?
(since receiving the 1st report)
        ( ) Yes *ask:* What have you done? _____
        ( ) No
        ( ) DK/NS

26c. Please tell us how much influence the MyHER report was on your decision to take this step, was it...
      ( ) the main reason,
      ( ) one reason among several, but not the main reason, or
      ( ) It did not have an influence
      ( ) DK/NS

26d. Did you do anything else to <u>reduce</u> the amount of energy used by home computers or electronics?
(since receiving the 1st report)
      ( ) Yes *ask:* **What have you done?** _____
      ( ) No
      ( ) DK/NS

If yes,
26e. Please tell us how much influence the MyHER report was on your decision to take this step, was it...
      ( ) the main reason,
      ( ) one reason among several, but not the main reason, or
      ( ) It did not have an influence
      ( ) DK/NS

26f. Did you do anything that may have <u>increased</u> the amount of energy used to power your home computer or electronics? An example would be if you purchased another TV or computer.
      ( ) Yes
      ( ) No
      ( ) DK/NS

If yes to q26f, ask:
26g. What have you done?
after each answer, ask: **Anything else?**
Get details on what was done and when.
      1: _____
      2: _____
      3: _____

Water Heater

Repeat the series "did you take any steps..." If Yes "how much influence the MyHER report was..." up to three times
27. Since receiving your first Home Energy Report did you take any steps to <u>reduce</u> the amount of energy used to heat the hot water in your home?
      ( ) Yes *ask:* **What have you done?** _____
      ( ) No
      ( ) DK/NS

27a. Please tell us how much influence the MyHER report was on your decision to take this step, was it...
(read answers aloud, select only one)
       ( ) the main reason,
       ( ) one reason among several, but not the main reason, or
       ( ) It did not have an influence
       ( ) DK/NS

27b. Did you do anything else to <u>reduce</u> the amount of energy used to heat the hot water in your home?
(since receiving the 1st report.)
       ( ) Yes *ask:* **What have you done?** _____
       ( ) No
       ( ) DK/NS

27c. Please tell us how much influence the MyHER report was on your decision to take this step, was it...
       ( ) the main reason,
       ( ) one reason among several, but not the main reason, or
       ( ) It did not have an influence
       ( ) DK/NS

27d. Did you do anything else to <u>reduce</u> the amount of energy used to heat the hot water in your home?
(since receiving the 1st report.)
       ( ) Yes *ask:* **What have you done?** _____
       ( ) No
       ( ) DK/NS

If yes,
27e. Please tell us how much influence the MyHER report was on your decision to take this step, was it...
       ( ) the main reason,
       ( ) *one reason among several, but not the main reason, or*
       ( ) It did not have an influence
       ( ) DK/NS

27f. Did you do anything that would have <u>increased</u> the amount of energy used to heat the hot water in your home? An example of something that would increase the amount of energy is to turn up your hot water tank's temperature.
       ( ) Yes
       ( ) No
       ( ) DK/NS

If yes to q27f, ask:

27g. **What have you done?**
after each answer, ask: **Anything else?**
Get details on what was done and when.

      1: _____

      2: _____

      3: _____

Pool

28. **Do you have a pool?**

      ( ) Yes

      ( ) No

      ( ) DK/NS

If yes. ask:
28a. **Did you make any changes to your pool's heating or filtering systems to make it more efficient?**

      ( ) Yes

      ( ) No

      ( ) DK/NS

If yes to q28a, ask:
28b. **What have you done?**
after each answer, ask: **Anything else?**
Get details on what was done and when.

1: _____

2: _____

3: _____

If they never read the reports, Skip to q40

Now I am going to ask you some general agreement statements. On a scale from 1-10, with 1 indicating that you strongly disagree, and 10 indicating that you strongly agree, please rate the following statements.

29. **The reports are easy to understand.**

      ( ) 1

      …

      ( ) 10

      ( ) DK/NS

If 7 or less, ask:
29a. **How could this be improved?**

_____

Ask question 29b if they were receiving the reports before April or May 2012.

29b. Do you recall noticing a change in the reports in April or May 2012?

( ) Yes *ask:* **29c. What changed?** _____

( ) No

( ) DK/NS

( ) Not applicable

If yes to 29b, ask:

29d. Are the reports now easier to understand, more difficult, or about the same?*

( ) Easier

( ) More difficult

( ) About the same

( ) DK/NS

30. The energy saving tips in the report provided new ideas that I was not previously considering.

( ) 1

...

( ) 10

( ) DK/NS

If 7 or less, ask:

30a. How could this be improved?

_____

31. I find the reports useful.

( ) 1

...

( ) 10

( ) DK/NS

If 7 or less, ask:

31a. How could this be improved?

_____

32. I enjoy receiving and reading the reports.

( ) 1

...

( ) 10

( ) DK/NS

If 7 or less, ask:

32a. How could this be improved?

_____

33. I find the graphics helpful in understanding how my energy usage compares to others like me.

    ( ) 1

    ...

    ( ) 10

    ( ) DK/NS

If 7 or less, ask:

33a. How could this be improved?

---

34. I find the graphics helpful in understanding how my energy usage changes over the seasons.

    ( ) 1

    ...

    ( ) 10

    ( ) DK/NS

If 7 or less, ask:

34a. How could this be improved?

---

35. Overall I am satisfied with the reports.

    ( ) 1

    ...

    ( ) 10

    ( ) DK/NS

If 7 or less, ask:

35a. How could this be improved?

---

36. Is there anything that you would like to see changed about the report?

---

37. On a scale from 1-10, with 1 indicating that you were very dissatisfied, and 10 indicating that you were very satisfied, please indicate your overall satisfaction with Duke Energy.

    ( ) 1

    ...

    ( ) 10

    ( ) DK/NS

If 7 or less, ask:

37a. How could this be improved?

---

38. Have you shared or discussed this report with others?
    ( ) Yes
    ( ) No
    ( ) DK/NS

If Yes to q38, ask:
38a. Who did you share it with?
(Mark all that apply)
    [ ] Family
    [ ] Friends
    [ ] Neighbors
    [ ] Co-workers
    [ ] Other
    [ ] DK/NS

39. If you were rating your overall satisfaction with the Home Energy Report, would you say you were Very Satisfied, Somewhat Satisfied, Neither Satisfied nor Dissatisfied, Somewhat Dissatisfied, or Very Dissatisfied?
    ( ) Very Satisfied
    ( ) Somewhat Satisfied
    ( ) Neither Satisfied nor Dissatisfied
    ( ) Somewhat Dissatisfied
    ( ) Very Dissatisfied
    ( ) Refused
    ( ) DK/NS

39a. Why do you give it that rating?

_____

40. There is a phone number and email address for Customer Support on the reports, have you called or emailed Customer Support for any reason?
    [ ] Yes, emailed
    [ ] Yes, called
    [ ] No
    [ ] DK/NS

If yes,
40a. Why did you call/email?

_____

If yes,
40b. Were you satisfied with the response you received? Why or why not?

_____

41. Do you use Facebook, Twitter and/or other social media?

    ( ) Yes

    ( ) No

    ( ) DK/NS

If yes to q41, ask:

41a. Have you ever interacted with Duke Energy thru social media? And if so, what did you use?

(Mark all that apply)

    [ ] Yes, Facebook

    [ ] Yes, Twitter

    [ ] Yes, Other

    [ ] No

    [ ] DK/NS

If yes to q41, ask:

41b. Have you ever used social media to communicate with other people about Duke Energy, energy efficiency, energy prices, or other energy related topics?

    ( ) Yes

    ( ) No

    ( ) DK/NS

If yes to 41b, ask:

41c. What did you communicate about? _____

42. Have you or someone in your household visited the Duke Energy web site in the past year?

    ( ) Yes

    ( ) No

    ( ) DK/NS

If Yes to 42, ask:

42a. What did you do while you were accessing the website?

(Do not read answers. Mark all that apply)

    [ ] Pay my bill

    [ ] Review or change account information

    [ ] Search for ways to save on my bill (energy savings tips, etc.)

    [ ] Search for information on energy efficiency (rebates, incentives, programs, etc.)

    [ ] Find out about Duke Energy activities (e.g. plant building, community actions etc.)

    [ ] Other

    [ ] DK/NS

As a follow up to the report, Duke Energy is interested in providing further services that might be of interest to customers. I am going to read a list of possible services that Duke

Energy may consider offering. On a scale from 1-10, with 1 indicating that you would be very uninterested, and 10 indicating that you would be very interested, please rate your interest in the following services.

43. Help in finding weatherization contractors to make your home more efficient
    ( ) 1
    ...
    ( ) 10
    ( ) DK/NS

44. Help in finding energy efficient equipment and appliances
    ( ) 1
    ...
    ( ) 10
    ( ) DK/NS

45. Rebates for energy efficient home improvements
    ( ) 1
    ...
    ( ) 10
    ( ) DK/NS

46. Inspection services of work performed by contractors
    ( ) 1
    ...
    ( ) 10
    ( ) DK/NS

47. Financing for energy efficient home improvements
    ( ) 1
    ...
    ( ) 10
    ( ) DK/NS

48. Home energy audits or inspections of your home with specific recommendations for *improvements*
    ( ) 1
    ...
    ( ) 10
    ( ) DK/NS

49. Social Networking sites such as Facebook and Twitter to read about or discuss energy efficient solutions with energy experts
    ( ) 1
    ...
    ( ) 10

( ) DK/NS

50. Are you now or have you ever been a participant in any of the following Duke Energy programs
(Mark all that apply)
(Enter DK if they do not recall when they participated)
If they ask "What is that program?" you may use the explanation given in q51.

[ ] **Power Manager**
ask: **What month and year did you participate in this program?** _____
[ ] **Residential Smart Saver HVAC**
ask: **What month and year did you participate in this program?** _____
[ ] **Home Energy House Call**
ask: **What month and year did you participate in this program?** _____
[ ] **Personalized Energy Report**
ask: **What month and year did you participate in this program?** _____
[ ] **Appliance Recycling**
ask: **What month and year did you participate in this program?**
[ ] **CFLs shipped to your home** *(IVR/WEB – NOT HEHC or PER -callers, please verify)*
ask: **What month and year did you participate in this program?** _____
[ ] None of the above

For all programs not checked in q50, ask the following questions:
51. On a scale from 1-10, with 1 indicating not at all interested and 10 indicating very interested, please rate your interest in Duke Energy providing the following programs:

(Power Manager)
51a. A program that provides bill credits in exchange for allowing Duke Energy to temporarily turn your air conditioning unit off and on during periods of high use on hot days
( ) 1
...
( ) 10
( ) DK/NS

(Residential Smart Saver HVAC)
51b. A program that provides rebates for energy efficient improvements to your house such as energy efficient heating and cooling units.
( ) 1
...
( ) 10
( ) DK/NS

(Home Energy House Call)
51c. A program in which an assessor comes to your house, suggests energy efficiency improvements, and Duke Energy provides certain low-cost improvement materials for free.
( ) 1

...
( ) 10
( ) DK/NS

(Personalized Energy Report)
51d. A program that provides personalized energy analysis and ways to save energy and money by filling out a short survey with questions about your home.
( ) 1
...
( ) 10
( ) DK/NS

(Appliance Recycling)
51e. A program that provides a rebate to pick up and properly recycle an inefficient refrigerator or freezer from your home
( ) 1
...
( ) 10
( ) DK/NS

(Free CFLs - IVR/WEB)
51f. A program that provides free CFLs mailed directly to your home
( ) 1
...
( ) 10
( ) DK/NS

52. What other services could Duke Energy provide to help improve home energy efficiency? _____

I would now like you ask you a few demographic questions before we get off the phone.

e1. Do you own an electric vehicle?
( ) Yes *ask:* How many? _____
( ) No
( ) Refused

e2. Do you have a solar water heating system?
( ) Yes *ask:* What size? _____
( ) No
( ) Refused

e3. Do you have a solar photovoltaic system? *(Solar panels)*
( ) Yes *ask:* What size? _____
( ) No

( ) Refused

d1. In what type of building do you live?
( ) Single-family home, detached construction
( ) Single family home, factory manufactured/modular
( ) Single family, mobile home
( ) Row House
( ) Two or Three family attached residence-traditional structure
( ) Apartment (4 + families)---traditional structure
( ) Condominium---traditional structure
( ) Other _____
( ) Refused
( ) DK/NS

d2. What year was your residence built?
( ) 1959 and before
( ) 1960-1979
( ) 1980-1989
( ) 1990-1997
( ) 1998-2000
( ) 2001-2007
( ) 2008-present
( ) DK/NS

d3. How many rooms are in your home (excluding bathrooms, but including finished basements)?
( ) 1-3
( ) 4
...
( ) 9
( ) 10 or more
( ) DK/NS

d4. Which of the following best describes your home's heating system?
(Mark all that apply)
[ ] None
[ ] Central forced air furnace
[ ] Electric Baseboard
[ ] Heat Pump
[ ] Geothermal Heat Pump
[ ] Other

d5. How old is your heating system?
( ) 0-4 years
( ) 5-9 years
( ) 10-14 years

( ) 15-19 years
( ) 19 years or older
( ) DK/NS
( ) Do not have
( ) Other _____

d6. What is the primary fuel used in your heating system?

( ) Electricity
( ) Natural Gas
( ) Oil
( ) Propane
( ) Other _____

d7. What is the secondary fuel used in your primary heating system, if applicable?

( ) Electricity
( ) Natural Gas
( ) Oil
( ) Propane
( ) Other _____
( ) None

d8. Do you use one or more of the following to cool your home?
(Mark all that apply)

[ ] None, do not cool the home
[ ] Heat pump for cooling
[ ] Central air conditioning
[ ] Through the wall or window air conditioning unit
[ ] Geothermal Heat pump
[ ] Other _____

d9. How many window-unit or "through the wall" air conditioner(s) do you use?

( ) None
( ) 1
...
( ) 7
( ) 8 or more

d10. What is the fuel used in your cooling system?

[ ] Electricity
[ ] Natural Gas
[ ] Oil
[ ] Propane
[ ] Other
[ ] None

d11. How old is your cooling system?

( ) 0-4 years
( ) 5-9 years
( ) 10-14 years
( ) 15-19 years
( ) 19 years or older
( ) DK/NS
( ) Do not have

d12. What is the fuel used by your water heater?
(Mark all that apply)
[ ] Electricity
[ ] Natural Gas
[ ] Oil
[ ] Propane
[ ] Other
[ ] No water heater

d13. How old is your water heater?
( ) 0-4 years
( ) 5-9 years
( ) 10-14 years
( ) 15-19 years
( ) More than 19 years
( ) DK/NS

d14. What type of fuel do you use for indoor cooking on the stovetop or range?
(Mark all that apply)
[ ] Electricity
[ ] Natural Gas
[ ] Oil
[ ] Propane
[ ] Other
[ ] No stovetop or range

d15. What type of fuel do you use for indoor cooking in the oven?
(Mark all that apply)
[ ] Electricity
[ ] Natural Gas
[ ] Oil
[ ] Propane
[ ] Other
[ ] No oven

d16. What type of fuel do you use for clothes drying?
(Mark all that apply)
[ ] Electricity

[ ] Natural Gas
[ ] Oil
[ ] Propane
[ ] Other
[ ] No clothes dryer

d17. About how many square feet of living space are in your home?
(Do not include garages or other unheated areas)
Note: A 10-foot by 12 foot room is 120 square feet
( ) Less than 500
( ) 500 to 999
( ) 1000 to 1499
( ) 1500 to 1999
( ) 2000 to 2499
( ) 2500 to 2999
( ) 3000 to 3499
( ) 3500 to 3999
( ) 4000 or more
( ) DK/NS

d18. Do you own or rent your home?
( ) Own
( ) Rent

d19. How many levels are in your home (not including your basement)?
( ) One
( ) Two
( ) Three

d20. Does your home have a heated or unheated basement?
( ) Heated
( ) Unheated
( ) No basement

d21. Does your home have an attic?
( ) Yes
( ) No

d22. Are your central air/heat ducts located in the attic?
( ) Yes
( ) No
( ) N/A

d23. Does your house have cold drafts in the winter?
( ) Yes
( ) No

d24. Does your house have sweaty windows in the winter?
( ) Yes
( ) No

d25. Do you notice uneven temperatures between the rooms in your home?
( ) Yes
( ) No

d26. Does your heating system keep your home comfortable in winter?
( ) Yes
( ) No

d27. Does your cooling system keep your home comfortable in summer?
( ) Yes
( ) No

d28. Do you have a programmable thermostat?
( ) Yes
( ) No

d29. What temperature is your thermostat set to on a typical summer weekday afternoon?
( ) Less than 69 degrees
( ) 69-72 degrees
( ) 73-78 degrees
( ) Higher than 78 degrees
( ) Off
( ) DK/NS

d30. What temperature is your thermostat set to on a typical winter weekday afternoon?
( ) Less than 67 degrees
( ) 67-70 degrees
( ) 71-73 degrees
( ) 74-77 degrees
( ) 78 degrees or higher
( ) Off
( ) DK/NS

d31. Do You Have a swimming pool, spa or hot tub?
( ) Yes
( ) No

Read all answers until they reply
d32. **Would a two-degree increase in the summer afternoon temperature in your home affect your comfort..**
( ) **Not at all**

( ) Slightly
( ) Moderately, or
( ) Greatly

d33. How many people live in this home?
( ) 1
...
( ) 7
( ) 8 or more
( ) Prefer not to answer

d34. How many of them are teenagers? *(age 13-19)*
If they ask why: Explain that teenagers are generally associated with higher energy use.
( ) 0
...
( ) 7
( ) 8 or more
( ) Prefer not to answer

d35. How many persons are usually home on a weekday afternoon?
( ) 0
...
( ) 7
( ) 8 or more
( ) Prefer not to answer

d36. Are you planning on making any large purchases to improve energy efficiency in the next 3 years?
( ) Yes
( ) No
( ) DK/NS

The following questions are for classification purposes only and will not be used for any other purpose than to help Duke Energy continue to improve service.

d37. What is your age group?
( ) 18-34
( ) 35-49
( ) 50-59
( ) 60-64
( ) 65-74
( ) Over 74
( ) Prefer not to answer

d38. Please indicate your annual household income.
( ) Under $15,000

( ) $15,000-$29,999
( ) $30,000-$49,999
( ) $50,000-$74,999
( ) $75,000-$100,000
( ) Over $100,000
( ) Prefer Not to Answer

We've reached the end of the survey. As I mentioned earlier, we would like to send you $20 for your time and feedback today. Should we send the $20 to *{address on file}*, **or would a different address be better?**

Either way, enter entire address here:
Name: _____
Address: _____
City: _____
State: _____
Zip: _____

You should receive your $20 check in about 4-6 weeks. It will come in an envelope from our company: TecMarket Works. Thanks again for your time today!

Appendix E: Example MyHER Mailing

MICHAEL
Account Number:
February 2013

**Duke
Energy.**

My Home Energy Report

MICHAEL ██████ Home Electricity Usage for February 2013

How am I doing?

What is this report?

Duke Energy developed this report to help you understand your energy usage and find ways to help you save money and energy. The report compares your home energy efficiency with similar homes.

Why would Duke Energy try to help me save energy?

When customers reduce their energy needs, it reduces the costs to provide energy and the need to build more power plants, which lowers bills for you, your community, and Duke Energy.

Tell us what you think of the report at:

www.duke-energy.com/
homereportsurvey

Questions?

Visit
www.duke-energy.com/homereport

Email
HomeReport@duke-energy.com

Call
888-873-3853
M-F 7AM-7PM ET
SAT 8AM-1PM ET

Check out this video to learn more about your personalized report.

Whose electricity usage is being compared to mine?
967 households compared
• In the Cincinnati area
• Non-electric heating
• 1500-2100 sq. ft.
• Built in 1920-1930

$58
Your
Home
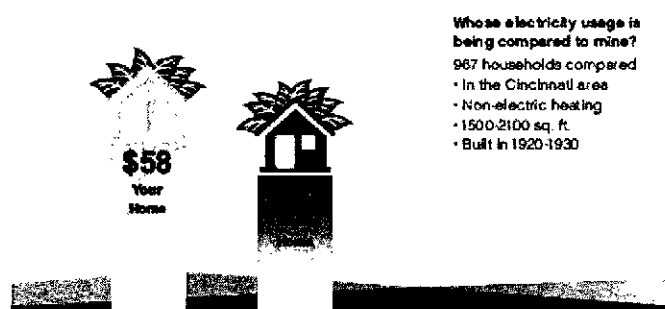
Nice work. You only spent $14 more than the efficient home. Just a few changes could have your neighbors trying to catch up to you!!

Tips Based on Your Usage and Home Profile

What can I do to save money and energy?

Increase security and cut costs!

Put your outdoor lights on motion detectors or timers

Save up to **$24** per year.

Do you leave your outdoor lights on all night? Try installing motion detectors or timers on your outdoor lights to reduce the power they burn through. Motion detectors help ward off trouble while significantly reducing energy use. Using motion detectors or timers is a great way to get the benefits of outdoor lighting while cutting your energy use.

Easy habits that can add up!

Save on hot water use

Save up to **$10** per year.

Making a few small changes in how you use water can easily save you 5% on your hot water use. Start in the morning by shortening your showers by a minute or two, and don't let the hot water run when you shave or brush your teeth. When doing laundry, wash your clothes in cold water. In the kitchen, run the water only when rinsing the dishes.

MICHAEL ████ Home Electricity Usage for the Past Year

How am I doing over time?
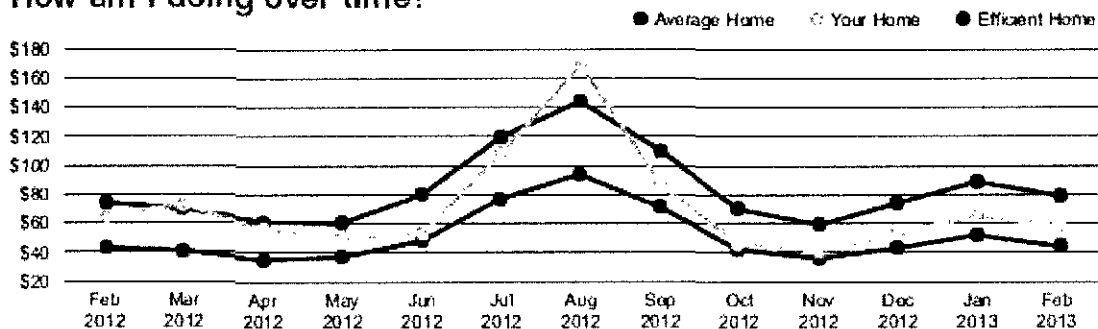
● Average Home   ○ Your Home   ● Efficient Home

| | Feb 2012 | Mar 2012 | Apr 2012 | May 2012 | Jun 2012 | Jul 2012 | Aug 2012 | Sep 2012 | Oct 2012 | Nov 2012 | Dec 2012 | Jan 2013 | Feb 2013 |

Your usage for this month has **decreased** compared to a year ago. Even though you are doing well, you still spent **$260 more** than efficient homes in your area in the last 12 months.

Take action. Reduce your use.

If Doctors Still Made House Calls

Think those days are gone?

If you qualify for a Home Energy House Call, your free in-home energy assessment includes personalized information tailored to your home and energy practices, along with a free Energy Efficiency Starter Kit.

Visit duke-energy.com/MyHER612 to find out if our Energy Experts are accepting appointments in your neighborhood.

Room to Breathe

Summer will be here before we know it and who doesn't love their air conditioner in the summer? If you want yours to love you back, keep the area around your outside unit clear of weeds and debris. Never build, place or plant anything near the unit that could interfere with air circulation. It will thank you with lower bills and fewer service calls.

Appendix F: Summary of Energy Saving Action Tips and Messages

NOTE: Each customer receives each tip one time.

Action Title	Action Sub-Title	Baseline kWh Savings Value (multiplied by a given state's rate factor.	Age Threshold (>, years): Applied to only those homes that meet this age threshold.
Buy an ENERGY STAR refrigerator	Keep cool when buying a fridge...	100	5
Unplug your second refrigerator or freezer	Is your second fridge eating cash?	550	
Buy an ENERGY STAR dishwasher	Save time, water, and energy!	200	5
Weatherize your home	Reduce drafts and save!	140	5
Insulate your attic	Put a lid on your home!	500	10
Insulate electrical outlets and switch cover plates	Plug those drafty sockets!	100	
Enable energy management on your computer	Give your computer a rest!	300	
Use energy efficient lighting indoors	A bright idea for indoors!	200	
Use efficient bulbs for your outdoor lighting	A bright idea for outside!	150	
Put your outdoor lights on motion detectors or timers	Increase security and cut costs!	220	
Air dry your laundry	Save loads of energy!	550	
Buy an ENERGY STAR television	Good shows, great savings!	120	
Cut standby power to your home computing system	Plug into savings.	220	
Use your microwave instead of a conventional oven	Cook smart and save.	90	
Minimize the run time of your dryer	Use sensors and save.	100	
Use task lighting	Light your task, not your room.	120	

Action Title	Action Sub-Title	Baseline kWh Savings Value (multiplied by a given state's rate factor.	Age Threshold (>, years): Applied to only those homes that meet this age threshold.
Turn off outdoor lights during the day	Lighting up the night, not the day.	650	
Cut the standby power used for home entertainment	Why pay for power you don't use?	350	
Save on hot water use	Easy habits that can add up!	330	
Replace your old hot water heater	Upgrade that old tank!	210	10
Buy an ENERGY STAR dehumidifier	Stay dry and save energy!	210	
Clean or replace your furnace filters	Give your filters a clean start!	120	
Set your thermostat as high as comfortable in summer	Creep up a degree or two...	500	

Appendix G: Welcome Letter and Frequently Asked Questions
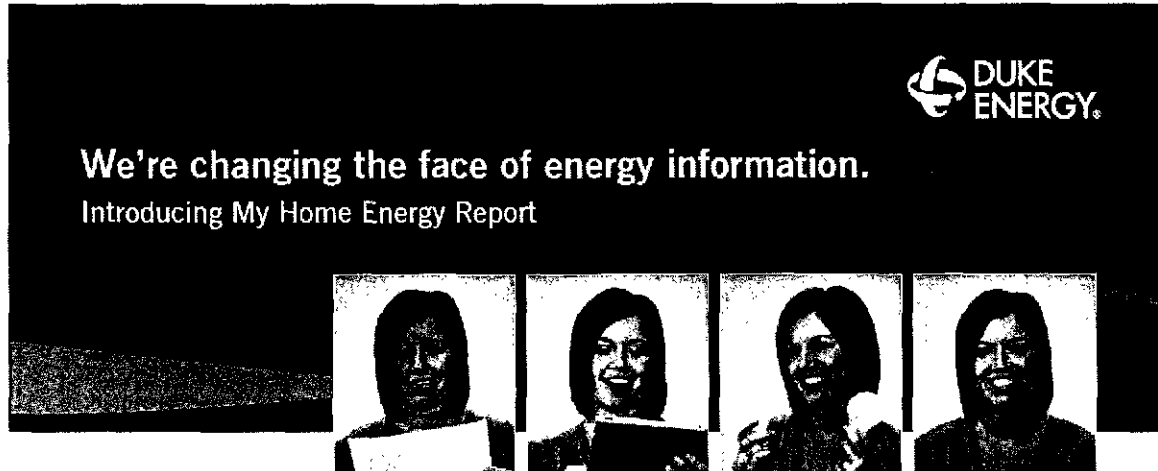
Enclosed you'll find My Home Energy Report, which shows how your energy use compares to similar homes in your community. It also gives practical, personalized advice – based on your home's size, age, location and other factors – on ways to use less energy.

My Home Energy Report includes:

- **Easy-To-Read Graphs**
  See how your home performs on a month-to-month basis and how it compares to similar homes.

- **Timely Tips**
  Relevant and seasonal tips on how to improve your home's energy efficiency.

- **Regular Updates**
  Updated reports will be sent periodically throughout the year, so you can see how your energy saving efforts have paid off over time.

Your voluntary participation in My Home Energy Report can be a practical first step in understanding your electricity usage and identifying steps to take more control.

Please review the frequently asked questions on the reverse side of this letter. If you have additional questions, please visit www.duke-energy.com/HomeReport, email HomeReport@duke-energy.com or call 888-873-3853.

My Home Energy Report is another way we're changing the face of energy information.

Sincerely,

K. Griffin
Program Manager

TecMarket Works

Frequently Asked Questions about My Home Energy Report

What is My Home Energy Report?
Duke Energy developed this report to help you understand and conserve energy. The report compares your home's energy efficiency over time, and to similar homes in your area. This energy efficiency program is endorsed by your state utility commission.

Why is Duke Energy trying to help me save energy?
When customers reduce their energy consumption, it reduces the costs to provide energy and the need to build more power plants in the future, which actually lowers bills for everyone. So saving energy makes business sense and common sense.

How often will I receive the report?
Your report will be delivered through the mail periodically throughout the year. Keep an eye out for your next My Home Energy Report so you can track your progress.

Why doesn't this amount match what I see on my actual bill?
Because everyone is on different billing cycles, we multiply your actual energy usage (in kilowatt hours) over a fixed, common-time period with the average residential rate. This calculates the costs shown on your report.

How do you choose the homes used in my comparison?
Duke Energy compiles energy usage figures, customer-supplied data and public information (location, size and home age) on nearby, similar homes to develop the comparison. However, public information sometimes becomes outdated as homes are renovated or situations change. If the information on your report appears to be incorrect, please provide us the correct information by emailing HomeReport@duke-energy.com or calling 888-873-3853, so we can update it on future reports.

Is my home energy use being shared with other customers?
No. All of the comparison information is aggregated to create your report. Your specific information and home characteristics are not shared with others.

Whose home qualifies as the "Efficient Home"? Are these real people and homes?
Yes, these are real households. This report uses a scale of 1 to 100 to rank all of the homes that are similar to yours. The "Average Home" represents the ones in the middle of the pack, performing at the 50-percent mark. The "Energy Efficient Home" represents households that fall at the 25-percent mark, which means that 25 percent of the homes in your comparison spend this amount – or less – on energy.

How do my most efficient neighbors manage to use so much less energy than me?
They may be taking a variety of savings-actions, like: adjusting or programming their thermostats to manage heating and cooling costs; turning off lights and home electronics when not in use; running only full laundry and dishwasher loads; and installing more efficient heating/air-conditioning systems or water heaters.

I have gas heating. Does this report compare energy usage for both electricity and gas?
No, the report only accounts for a household's electricity use, so the costs for gas are not included. However, you are only being compared to homes that are like yours, so we do not compare an all-electric home to a gas-heated home.

What is a kilowatt-hour?
A kilowatt-hour (kWh) is a universal unit of measure for electricity use. One 100-watt light bulb left on for 10 hours consumes one kWh of electricity (100 watts x 10 hours = 1,000 watt-hours = 1 kWh).

What if I have more questions, want to correct my household data or want to stop receiving this report?
Please email questions, data corrections or requests to HomeReport@duke-energy.com or call 888-873-3853.

Appendix H: What It Means to be Energy Efficient

Surveyed customers were asked to tell us "in your own words what it means to be energy efficient."

Table 42. In Your Own Words, Please Tell Me What It Means To Be Energy Efficient

	Total (N=249)
Try to use less energy / least amount necessary / don't waste	64.7%
Saving money on bills / being cost effective / keeping rates down	22.9%
Helping the environment / sustainability / being green	8.9%
Being aware of energy use	8.4%
Turn off lights / appliances when not in use	7.2%
Heating & cooling decisions / trading comfort for savings	6.8%
Insulation / seal doors, windows and other leaks	3.6%
Upgrading home and appliances with efficient equipment	2.8%
Try to use less water / don't waste	2.4%
Use CFLs	1.6%
Make home more comfortable	0.8%
Conserving / being mindful of hot water usage	0.8%
Unique responses	5.2%
Don't know	1.2%

Percentages total to more than 100% because respondents could give multiple responses.

Try to use less energy / least amount necessary / don't waste

Most responses (64.7% or 161 out of 249) included something close to the standard definition of energy efficiency: trying to use less energy; using the least amount of energy necessary; not wasting energy; etc. All 161 of the verbatim responses in this category are listed below (note that multiple responses are accepted for this question, so some of these responses also include comments categorized under the other headings listed above).

- *A lower electric bill and not wasting electricity.*
- *Adequately energized and save and use energy properly.*
- *Be conservative with energy use.*
- *Being conscious of energy use and trying to reduce electrical and gas consumption.*
- *Knowing how much energy you're using and finding ways to reduce it.*
- *Being able to do the maximum with the least amount of effort.*
- *Being conscious of energy use and staying vigilant about ways to save.*
- *Consuming only the energy you need, not wasting it.*
- *Doing all you can to reduce energy consumption by using all the tools and knowledge available to you.*
- *Doing as much as you can not to use electricity.*
- *Doing whatever is possible to reduce energy consumption.*
- *Eliminating energy waste and getting the most out of what you can energy-wise.*
- *Finding ways to reduce energy use.*
- *Making sure we're not using too much energy or spending too much money.*
- *Maximizing what you can get done with the energy you use.*

- *Minimizing energy usage.*
- *Not being wasteful with energy.*
- *Not using any more energy than you need to.*
- *Not using energy when you don't need to.*
- *Not wasting energy when you don't need to.*
- *Not wasting energy. (N=2)*
- *Not wasting the energy you've got.*
- *Saving money, reducing energy consumption, and carbon footprint.*
- *Saving resources, not being wasteful, educating children, saving money, and making a better world.*
- *Selecting the proper home products to minimize energy consumption.*
- *Trying to conserve, in example, to use less.*
- *Trying to cut down on energy usage.*
- *Trying to find ways to preserve energy and use cleaner energy.*
- *Trying to save as much energy as possible.*
- *Using available tools and techniques to conserve energy.*
- *Using energy as minimally as possible.*
- *Using less electricity.*
- *Using less energy. (N=2)*
- *Using only the energy you need when you need it.*
- *Using only the energy you need.*
- *Using the least amount of energy possible and not being wasteful with it.*
- *Utilizing what tools & knowledge are available to conserve energy.*
- *Common sense and not being wasteful with energy.*
- *Making due with the least amount of energy possible.*
- *Saving energy, in example cutting back.*
- *Using the latest technology and not using energy when you don't have to.*
- *Being more responsible and using less energy.*
- *Conserve.*
- *Conserving energy and being more practical.*
- *Conserving. Don't use more than needed.*
- *Cut down on the use of power.*
- *Cutting down on energy that is wasteful.*
- *Do everything you can to reduce energy.*
- *Do what you can to not waste electricity.*
- *Don't be wasteful with gas or electricity.*
- *Don't be wasteful with power.*
- *Don't use more power than you need.*
- *Don't waste energy.*
- *Being conscious of energy use and finding ways to conserve it.*
- *Being more conservative with the energy we use.*
- *Finding ways to cut back on energy consumption.*
- *Making efforts to use less energy.*
- *Using what methods you can to decrease energy consumption.*

- *Using and consuming less energy.*
- *Paying attention to ways to conserve energy.*
- *Energy savings.*
- *Find ways to use less energy, to conserve it, and buy appliances that are Energy Star rated.*
- *Getting the most out of the least, making changes, maintaining a good living, but decreasing energy use.*
- *How much productive energy use one gets out as compared to what is used.*
- *I think it means to not be wasteful, not compromising your lifestyle, but gaining benefits from the energy you're using.*
- *It is self defining; making a conscious effort to save energy to help yourself and how it impacts all of us.*
- *It means being mindful about how you are using power in your home and trying to restrict your usage.*
- *It means being wise about using energy.*
- *It means doing everything you can to utilize less energy.*
- *It means not taking energy away from an instance when there is a true need for energy use. Use energy more efficiently so you can access to that energy when you need it.*
- *It means that you are conserving as much energy as possible and that you take the time to stay current on the newer ideas for conserving energy.*
- *It means that you are more self-conscious about how you are using energy and that you don't you more than you need.*
- *It means that you are not be wasteful.*
- *It means that you are saving energy as best you can.*
- *It means that you aren't using more power than you need and that you are trying to help the environment.*
- *It means that you conserve on the amount of energy that you use and you use it more strategically to save money.*
- *It means don't be wasteful of energy and be conscientious about what you are doing and how you are using power.*
- *It means that you don't use as much energy.*
- *It means that you don't waste energy.*
- *It means that you make sure that you don't overuse power.*
- *It means that you take extra steps to be aware of your energy footprint and try to keep your footprint low.*
- *It means that you try to minimize the use of energy.*
- *It means that you try to not waste energy and be mindful with your power usage.*
- *It means that you use as little energy as possible.*
- *It means that you use as little energy as possible to do the stuff that you want to do.*
- *It means that you use less energy, but get the same amount of benefits.*
- *It means that you use the minimum amount of an energy source.*
- *It means to make the best uses of the resources that you have and to limit wasteful usage.*
- *It means using the least amount of power as possible, while still living your life.*

- *Just to be more conscious of the energy we are using, doing things differently, and trying to keep energy and cost low.*
- *Just using what I need.*
- *Making sure you insulate home and use electricity sparingly.*
- *Not being wasteful and being conscious of energy use.*
- *Not consuming as much as normal.*
- *Not just lowering costs or using less energy, but using the energy your receiving properly.*
- *Not to waste energy and save as much as possible on utility costs.*
- *Not using more energy than necessary.*
- *Not using more energy than you need.*
- *Not using more power than you need.*
- *Not using more than my share.*
- *Not wasting any power, especially electric and water.*
- *Not wasting energy and using the most efficient devices/appliances available.*
- *Not wasting energy. (N=2)*
- *Only use what you need.*
- *Reduce your electricity consumption and gas consumption in the house.*
- *Save energy.*
- *Saving and preserving energy when it's not being used.*
- *Saving energy and using less.*
- *Saving energy.*
- *That you make the right choices and do the right things to decrease your waste and use on the world.*
- *Think about ways to conserve energy and put them to practice.*
- *To conserve energy and save what you can.*
- *To cut down on use of electricity and gas.*
- *To know how to save energy.*
- *To not waste any electricity.*
- *To not waste electricity.*
- *To not waste energy and to make efforts to save energy where you can.*
- *To not waste energy.*
- *To preserve energy and electricity for the future.*
- *To save energy, use less power, and have energy-efficient appliances.*
- *To save energy.*
- *To save on energy and do everything you can to save money.*
- *To save gas and electricity,doing that also makes sense for the environment.*
- *To try to be efficient and save money.*
- *To use a reasonable amount of energy compared to those around me.*
- *To use as little electrical energy as possible.*
- *To use as little energy as possible to maintain a comfortable home.*
- *To use as little energy as possible, use CFLs, turn the lights out, and not running my dryer too much.*
- *To use less electric and be more efficient.*

- *To use natural resources sparingly and to not waste them, save electricity and be mindful.*
- *To use the best out of my energy and be cost effective in the decisions I make to improve my home.*
- *To use the least amount of power per person in the house.*
- *Try and conserve on electricity and gas usage.*
- *Try not to use energy you don't have to use.*
- *Try to conserve and not waste.*
- *Try to do what we can to conserve energy.*
- *Try to keep energy use lower.*
- *Try to use the least amount of energy possible.*
- *Try to use only the energy that you need.*
- *Trying to conserve energy.*
- *Trying to get along with less amount of energy, while having a fair amount of comfort.*
- *To turn of lights, shut off water, and try to cut down on as much as I can.*
- *Use appliances and other things without wasting energy.*
- *Use as little energy as possible for what you are doing.*
- *Use as little energy as you can.*
- *Use energy wisely.*
- *Use less energy. (N=2)*
- *Use the least amount of power as possible.*
- *Use what I need.*
- *Using as little as needed.*
- *Using as little as you can.*
- *Using less energy for same production.*
- *Using the least amount of energy for the most convenience and good.*
- *Using the minimum amount of energy and not wasting energy.*
- *Using the minimum amount of energy to do the job.*
- *Utilize the least amount of energy possible. Track your usage and work towards not even needing Duke.*
- *You don't waste energy.*

Saving money on bills / being cost effective / keeping rates down

The next most frequent category of response had to do with saving money on energy bills (22.9% or 57 out of 249). Some of the comments listed above under "try to use less energy" also include mentions of saving money. All 47 verbatim responses mentioning saving money which are not already included in the list above are listed below.

- *Be conscious of how my actions affect my usage and to act in accordance to save on energy costs.*
- *Be economically-minded.*
- *Be good to the environment, do my part for money savings.*
- *Doing what you can to keep costs down.*

- *Fuel and cost awareness.*
- *Looking for ways to save money.*
- *Spending the least for what you can get in return.*
- *Using less energy to create a financially positive result.*
- *Cutting costs.*
- *Besides saving money, try to stay at lower rates. Efficiency is also a safety issue, how many amps your system can handle. As an example: a space heater at 1500W and circuit breaker not tripping leads to overheating. I have made it a policy to not connect more than one appliance per receptacle. It is important to know the energy demand of various appliances.*
- *Cost effectiveness.*
- *Cost saving, but also saving energy is good for society. Everyone should do their part.*
- *Energy efficiency is where you can manage your electric bill and still be comfortable.*
- *I make money by thinking. If I can save money with my energy use, I get more money.*
- *In this day and age, the definition has changed quite a bit. It's to save as much on a fixed income as you can.*
- *It helps my monthly bill and it helps me be more aware of energy savings.*
- *It means doing great and saving.*
- *It means saving a little money and thinking about doing what is good for the environment.*
- *It means that you are saving money. (N=2)*
- *It means that you are spending less money.*
- *It means that you have smaller heating bills.*
- *Money in my pocket , being warmer, and no drafts*
- *Money, less power, good for the economy and environment.*
- *Money, save money. We want to stay warm.*
- *Monitor heat loss and water loss to make sure you are not losing money.*
- *My costs, less work on Duke, and the environment.*
- *Not an exorbitant amount of money going out for energy.*
- *Save me money, helps on pollution, helps all the way around. We're on a fixed income. We want to keep hot air in in winter and cool air in in summer. We try to not be wasteful.*
- *Save money. (N=3)*
- *Save money, save the environment.*
- *Saving money. (N=2)*
- *Saving money for the family and saving energy for the environment.*
- *Saving money, while being comfortable.*
- *Spend less money on energy bills.*
- *To have lower utility bills, more comfort in my home.*
- *To save energy, so your bill is lower.*
- *To save money and be energy-efficient.*
- *To save money on bills.*
- *To save us money.*
- *To spend less money on what we have.*

- *To use energy-efficient lightbulbs, keep your blinds closed, turning lights off, just common-sense things to keep your bill down.*
- *Trying to save money.*
- *Using the energy with a conscience. Not using something just because it's there. Being aware that the use of energy costs.*

All other responses

There were another 38 responses to the question "what does energy efficiency mean to you" which did not involve either "saving energy" or "saving money". Most of these responses are either generic statements ("be aware of energy use") or specific actions ("use CFLs"); they are listed below. (The three survey respondents whose verbatim comments are not listed in this appendix responded "I don't know" to this question).

- *Be aware of energy consumption.*
- *Being conscious of leaving stuff on.*
- *A conscientious effort to look at energy usage and make lifestyle choices accordingly. Energy is a depleted resource. Strive to become green and sustainable.*
- *Being more conscious about your carbon footprint.*
- *Buttoning up home as much as you can, buying the highest efficiency appliances and equipment, installing Low-E windows, and adding the most insulation you can.*
- *Cut down on heat, lights, and try and keep doors closed to rooms I'm not using.*
- *Doing all the insulation you can, turning the lights off, keeping your air conditioner turned up in the summertime.*
- *Energy efficiency is about being conscious of all aspects of heating and cooling.*
- *I think it's just doing your part to save in your own little area.*
- *Insulation, turning lights on and off when you leave the room, conserving appliances, doing full loads in the dishwasher and full loads of laundry, setting the water heater at 120 degrees, keeping the heat at 68 in the winter and 73 in the summer.*
- *It costs a lot.*
- *It means that you change your habits and mindset about energy.*
- *It means that you do your research about recent energy-efficient solutions and you implement them in your home.*
- *Keep up the house.*
- *Making a conscious effort to conserve your resources.*
- *Not having heating or cooling loss.*
- *Reducing as much of your carbon footprint as possible.*
- *Take advantage of different things like insulation, be efficient with windows and doors, conserve lights.*
- *To be aware of the energy you are using.*
- *To be aware of the hot water that you use and all the electricity that you use.*
- *To be careful of the energy one uses.*
- *To be conscious of how you manage a household and how you set the thermostat. Also, to be conscious of things like turning off appliances you are not using. Also, making sure the dishwasher has a lot of dishes in it before I run it.*

- *To make sure your windows and doors are sealed, don't use lights, using energy-efficient light bulbs, and using toaster oven instead of regular oven.*
- *To use energy-efficient devices.*
- *To use less of our resources to get the same results.*
- *To use natural resources as sparingly as possible for future generations.*
- *To utilize resources intelligently.*
- *Try to have energy-efficient appliances.*
- *Trying to make sure that my house is heated and cooled with as little energy as possible.*
- *Turn off lights and turning down the thermostat. Make sure your home has adequate insulation and weather stripping.*
- *Turn off lights. Turn off things when not in use.*
- *Turn your thermostat down. That's the biggest thing we've done.*
- *Turning lights out when they're not in use. Trying to take quick showers. Keeping the thermostat at a comfortable, but reasonable range.*
- *Turning off all power sources that don't need to be on. Keeping your thermostat at reasonable levels, maybe to a point of discomfort.*
- *Unplug things that we don't use very often.*
- *Watch how much hot water you use, don't leave lights on, turn down heat, turn up the A/C, turn off the TV, if not watching.*
- *What I'm doing and that I'm doing better than others.*
- *We set the thermostat a little lower in the winter and wear sweaters and set the thermostat a little higher in the summer. I replaced my furnace and AC with more efficient models and I try to maintain my appliances. We are using some CFLs. We have added weather stripping to the back door and are looking to add some weather stripping to another door. We frequently open our windows instead of running heat or A/C. We have a programmable thermostat.*

Appendix I: What Surveyed Customers Do to be More Energy Efficient

This survey asked MyHER customers: *"When you think about what you and your household does or can do to decrease energy consumption, what things come to mind?"* Figure 19 shows the responses by category, with verbatim responses following.
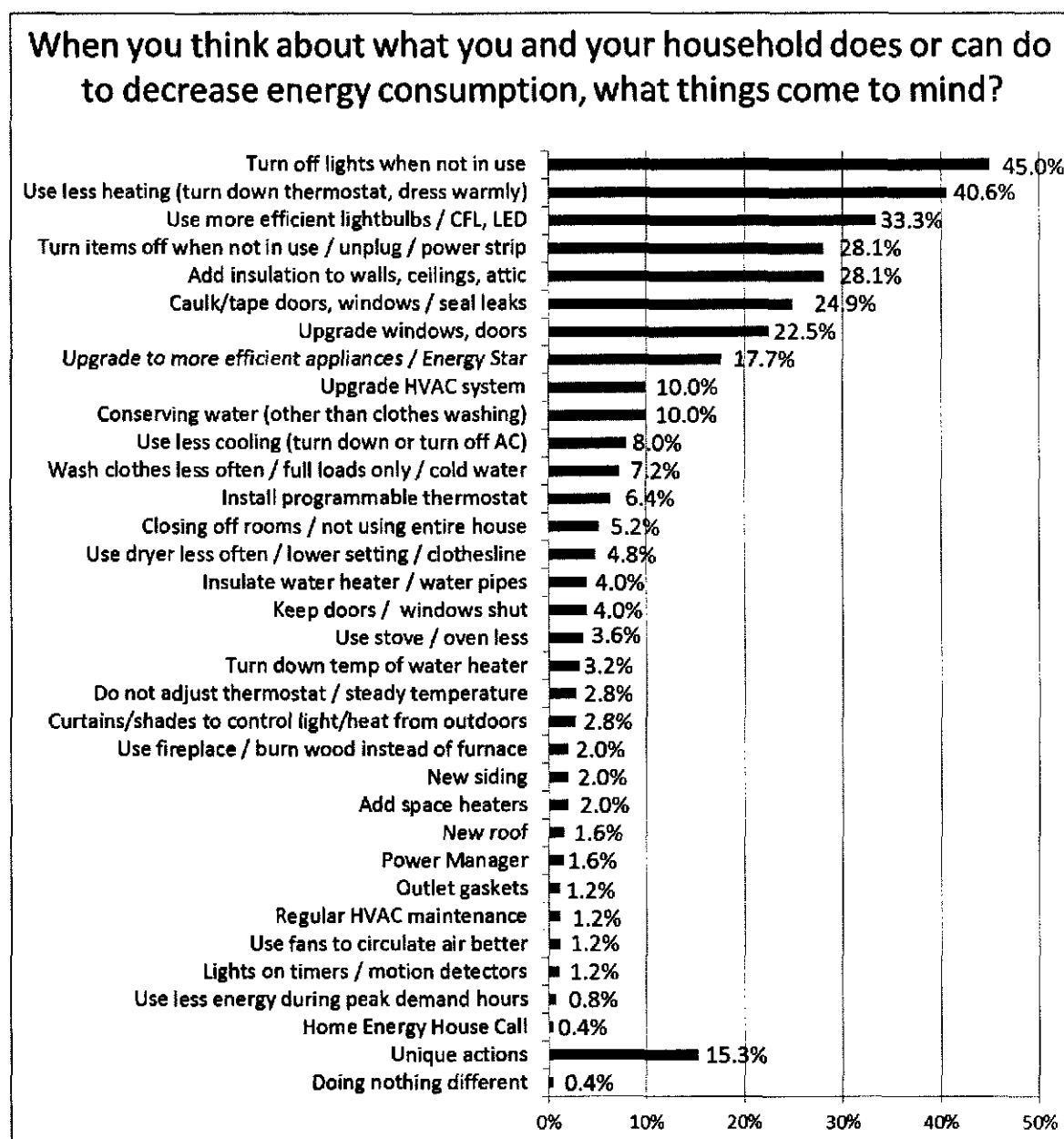
Figure 19. What Surveyed Customers Do To Save Energy (complete responses)

Turn off lights when not in use, N=112

- Turn off lights when not in use (N=106)
- Turn fewer lights on / use less (N=6)

Use less heating (turn down thermostat, dress warmly), N=101

- Turn down thermostat / lower temperature (in general) (N=63)
- Lower temperature in the winter (N=16)
- Lower temperature at night (N=3)
- Lower temperature when not at home (N=6)
- Lower temperature in the winter AND at night (N=1)
- Lower temperature at night AND when not at home (N=3)

Unique/multiple responses:

- *I use a programmable thermostat and set it low in the winter, particularly when I'm not home.*
- *I keep the furnace down and wear sweaters.*
- *We set the thermostat a little lower in the winter and wear sweaters.*
- *I keep thermostat steady and keep it low in winter and higher in summer.*
- *During the day, we program our thermostat to lower the temperature. It does the same thing at night.*
- *I use a setback on furnace in evenings.*
- *We have bought a new thermostat that automatically sets the temperature down.*
- *I keep the heat on a very tight schedule.*
- *I turn heat off.*

Use more efficient light bulbs (CFL, LED, halogen), N=83

- Use CFLs / replace incandescent bulbs with CFLs (N=74)
- Use more efficient light bulbs (type not specified) (N=2)

Unique/multiple responses:

- *LEDs and fluorescent lights for where you can't put LEDs.*
- *Buying CFLs, thinking about LEDs.*
- *Using CFL and LED lights.*
- *Replaced all bulbs with LEDs or CFLs.*
- *Use CFLs and LEDs.*
- *Use CFLs and halogen bulbs.*
- *I use CFLs but I don't like them as much as the standard bulbs.*

Turn items off when not in use / unplug / use power strip, N=70

- Turn items off when not in use (in general) (N=29)
- Unplug items when not in use (in general) (N=22)
- Unplug chargers when not in use (N=5)
- Use electronics devices sparingly (N=3)
- Turn off TV/radio/home entertainment when not in use (N=2)
- Use power strips to control devices (N=2)

Unique/multiple responses:

- *Disconnect appliances when we are aware. Unplug phone cords.*
- *Turn appliances off when you go out of town.*
- *Unplug the diverter box when leaving home for at least a few days.*
- *Use power strips. Unplug chargers when I am not using them. Unplug my stereo system when I am not using it.*
- *Turn fans off when they're not needed.*
- *Turn off electronics at night.*
- *Turn off most breakers when leaving town, except for the refrigerator.*

Insulate walls, ceilings, attic, basement, N=70
- Add insulation (not specified) (N=51)
- Add insulation to the attic (N=11)

Unique/multiple responses:
- *I installed blown insulation in my upper story.*
- *I insulated my crawlspace and ductwork.*
- *I added insulation to interior walls in attic and added basement insulation along sill and foundation.*
- *Add insulation to the attic and basement. I added insulation to the walls when I put on new siding.*
- *Insulate duct work.*
- *We need better insulation under our floors and in our attic.*
- *Make sure the sill plate is insulated.*
- *Attic and wall insulation.*

Caulk / tape doors, windows / seal leaks, N=62
- Seal home / fix leaks (in general) (N=22)
- Seal windows (N=14)
- Seal doors (N=10)
- Seal windows and doors (N=9)
- Plastic over windows (N=4)

Unique/multiple responses:
- *I put napkins in the windows to prevent drafts and towels under doors to prevent drafts.*
- *Seal holes and gaps in doors, windows, and around plumbing. Seal around the basement.*
- *I installed weather stripping around doors and plastic over the windows in our office, our coldest room.*

Upgrade windows / doors, N=56
- Install energy efficient windows (N=38)
- Install energy efficient doors (N=4)
- Install energy efficient windows and doors (N=14)

Upgrade appliances / Energy Star, N=44
- Newer / more energy efficient appliances (not specific) (N=33)
- "Energy Star" appliances (not specific) (N=6)

Unique/multiple responses:

- *Upgrade the water heater.*
- *Buy an energy-efficient washer and dryer.*
- *Use Energy Star appliances, such as a washer, dryer, stove, refrigerator, water heater, and dishwasher.*
- *Buy a more energy-efficient television.*
- *We should replace our refrigerator and water heater.*

Upgrade HVAC system, N=25
- Energy efficient furnace (N=10)
- Energy efficient furnace and AC (N=6)
- Energy efficient furnace and heat pump (N=3)

Unique/multiple responses:
- *Switch heat source from propane to electric.*
- *We have a heat pump.*
- *We installed a smaller furnace to replace an older, larger one.*

Conserving water (other than clothes washing), N=25
- Use less water (in general) (N=10)
- Turn off hot water when not in use (N=4)
- Take shorter showers / baths instead / less bath water (N=3)
- Only run dishwasher when full (N=3)

Unique/multiple responses:
- *Replace the showerhead and faucets.*
- *I put a hydrogen peroxide bottle in the back of the toilet, so we use less water.*
- *We installed new water fixtures from the Home Energy House Call kit.*
- *Take short showers or take a bath. Only run the dishwasher when it's full. Use cold water to rinse dishes.*
- *Wash dishes by hand.*

Use less cooling (turn down or turn off AC), N=20
- Set temperature higher (in the summer) (N=14)
- Use AC less often / do not use AC (N=3)
- Use moderate cooling / "medium" thermostat setting (N=3)

Wash clothes less often / full loads only / cold water, N=18
- Only do full loads of laundry (N=7)
- Wash clothes in cold water (N=6)
- Use washer and dryer less / as efficiently as possible (N=4)

Unique/multiple responses:
- *Do smaller loads of laundry.*

Install / use programmable thermostat, N=16
- Use programmable thermostat (in general) (N=16)

Shut off rooms / don't use entire house, N=13

- Close doors to rooms that are not in use (N=6)
- Close vents/registers to rooms that are not in use (N=5)

Unique/multiple responses:
- *I turn the heat off for upstairs.*
- *I could block off unused rooms, but I don't do it much.*

Use dryer less often / lower setting / clothesline, N=12
- Use dryer less (in general) (N=8)
- Air dry clothing instead of using dryer (N=3)

Unique/multiple responses:
- *Use the dryer on low heat temperature or hang clothing to dry.*

Insulate water heater, N=10
- Insulate water heater (N=7)

Unique/multiple responses:
- *Wrap hot water pipes with insulation.*
- *Pipe insulation and water heater insulation blanket.*
- *I would like to have a home energy audit and wrap the water heater, but I don't own the house.*

Keep doors / windows shut, N=10
- Shut doors / keep doors closed (N=4)
- Keep doors and windows shut (N=4)

Unique/multiple responses:
- *I keep the garage door shut to keep the colder air out of my garage and farther away from the door into the house.*
- *We could be better about making sure to keep the garage door closed.*

Use stove / oven less, N=9
- Use microwave instead of stove/oven (N=4)

Unique/multiple responses:
- *Use a microwave or electric skillet instead of the oven/stove.*
- *Use a toaster oven instead of regular oven.*
- *I have an electric stove and I don't cook that much.*
- *Cook outside when possible, so you don't need to use the stove.*
- *Use your stovetop conservatively.*

Turn down hot water temperature, N=8
- Reduce temperature on water heater (N=6)

Unique/multiple responses:
- *Set water heater at the recommended temperature.*
- *Turn down the water temperature to where it will run out by end of shower.*

Use curtains / shades to control light and heat from outdoors, N=7
- *We put better shades on our house to save on cooling in the summer.*

- *I tilt the blinds to reflect the sunlight onto the ceiling, so we don't have to turn on lights.*
- *I could use the shades more.*
- *Close shades and draperies.*
- *Close curtains at night.*
- *I open blinds to let the sun in to warm up the house.*
- *Keep the curtains closed.*

Do not adjust thermostat / maintain steady temperature, N=7

- *Keep the thermostat more in the middle.*
- *Keep thermostat at one level to save energy.*
- *We set our thermostat at a specific temperature and dress according to the temperature in the house.*
- *Keep thermostat steady and keep it low in the winter and higher in the summer.*
- *Set an efficient temperature on your thermostat.*
- *Keep equipment in operating range; for a heat pump, ensure it stays at operating temperature rather than having to use extra energy to get to operating temperature. I was instructed that this was the better method for using heat pumps in more northern locations.*
- *Keep thermostat at a consistent temperature.*

Use space heaters, N=5

- *I use a space heater. (N=2)*
- *I use an electric heater.*
- *I use space heaters.*
- *I use a space heater to reduce full house heating.*

Use fireplace / burn wood for heat, N=5

- *We don't use our furnace, we heat with wood.*
- *Use a wood-burning stove in the winter.*
- *Use the fireplace.*
- *We have a pellet stove as our primary heating system.*
- *Use the fireplace more.*

New siding, N=5

- Install new siding (N=5)

Power Manager, N=4

- *I participate in Power Manager. (N=2)*
- *I have the heat pump shut-off from Duke Energy.*
- *I participate in A/C savings from Duke.*

New roof, N=4

- Replace roof (N=3)

Unique/multiple responses:

- *We got our roof replaced and the two vents fixed after the big storm in March of 2012.*

Regular HVAC maintenance, N=3
- *Keep an eye on the furnace and filters.*
- *Check that furnace is running with blue flame, change filter every 30 days.*
- *Change the furnace filter monthly.*

Use fans to circulate air better, N=3
- *Use ceiling fans to circulate air and maintain a uniform temperature.*
- *We installed a ceiling fan.*
- *Use ceiling fans.*

Lights on timers / motion detectors, N=3
- *Use photo-sensitive outdoor lighting that switches on when it's dark.*
- *Put motion sensors on lights in the home.*
- *Put lights on a timer.*

Use outlet / switch gasket insulators, N=3
- *Install outlet gaskets on outside walls.*
- *Use outlet gaskets for wall sockets.*
- *Use outlet and switch gaskets.*

Use less energy during peak demand hours, N=2
- *We try to save our dishwasher use until nighttime.*
- *Use the washer and dryer late at night.*

Home Energy House Call, N=1
- *We installed new water fixtures from the Home Energy House Call kit.*

Unique actions, N=38
Generic responses:
- *Be conscious of electricity usage.*
- *Use electricity carefully.*
- *Use less gas and electric.*
- *Be conscious.*
- *Just use less electricity.*
- *Use less electricity.*
- *Minimalize consumerism.*

Specific responses:
- *Use natural heating and cooling when possible.* (N=2)
- *Stay away from home, drink in bars, and eat out. Build your home with the most efficient materials for where you live. Use solar panels and windmills.*
- *Don't run the dishwasher and washer/dryer at the same time.*
- *Clean out the lint area in the dryer.*
- *Our house was built so that we don't need to run our A/C, it's naturally cool. I don't run the dishwasher and dryer at the same time.*

- *Be more efficient. Be aware that too much energy use causes a detriment to everyone. The private sector and government need to work together to make the changes necessary and foster concern. Stabilization and discretionary concerns regarding planning, do not let things go by chance; we need to concentrate on making things as best as can be and have smoothly operating regulations.*
- *Using the lowest setting on the dishwasher and do not dry the dishes with heat.*
- *I am looking into geothermal and co-generation and other things like that, newer technologies.*
- *Install solar panels.*
- *Plant shade trees.*
- *Go to the laundromat.*
- *I track my energy use each day based on my thermostat and the weather conditions and try to use common sense in everything I do.*
- *Cap chimney.*
- *We frequently open our windows instead of running the heat or A/C. I try to maintain my appliances.*
- *We built an energy-efficient home in 2010.*
- *Use a window A/C unit to reduce full house central air.*
- *Use hot water on demand, install PEX plumbing.*
- *Get an energy audit.*
- *Choose even billing.*
- *Use a furnace that is an appropriate size for the home's square footage.*
- *We use our spa less, because that is a big energy drain. Use cold water in the dishwasher.*
- *Use more oil heat instead of electric.*
- *Use lower settings on various appliances because of electrical draw; use an 800 watt heater, not a 1500. I looked at solar panels, but the cost is not easily offset and cumbersome. I use an electricity use monitoring system called 'The Energy Detective'.*
- *Vent hot air from the basement.*
- *Use the sun to heat water.*
- *Use thermal curtains.*
- *Monitor heat loss.*
- *Use solar power and wind power.*
- *I turned off my wife's hot tub.*
- *Try to use gas on stove.*

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Appendix J: Surveyed MyHER Customer Demographics

Surveyed MyHER customers were asked a series of demographic and household questions at the end of the survey. These results are for internal Duke Energy use only.

MyHER customers were also asked if they had moved into a new home since the time they started receiving Home Energy Reports. Only three recipients surveyed (1.2% of 249) moved into a new home. One customer said they moved in 2008 (actually before the program began), but they still own their previous residence, one customer moved in September, 2011 (the month the program began in Ohio), and one customer moved in November, 2012. All three of these customers say they "do more than others" for energy efficiency and read their MyHER reports.

In what type of building do you live?				
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single-family home, detached construction	227	91.2	91.2	91.2
	Single family home, factory manufactured/modular	5	2.0	2.0	93.2
	Single family, mobile home	3	1.2	1.2	94.4
	Row House	2	.8	.8	95.2
	Two or Three family attached residence- traditional structure	2	.8	.8	96.0
	Apartment (4 + families)--- traditional structure	1	.4	.4	96.4
	Condominium---traditional structure	6	2.4	2.4	98.8
	Other: land-o-minium	1	.4	.4	99.2
	Other: Log cabin	1	.4	.4	99.6
	Other: 2 old barns	1	.4	.4	100.0
	Total	249	100.0	100.0	

What year was your residence built?				
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1959 and before	88	35.3	35.3	35.3
	1960-1979	53	21.3	21.3	56.6
	1980-1989	22	8.8	8.8	65.5
	1990-1997	25	10.0	10.0	75.5
	1998-2000	11	4.4	4.4	79.9
	2001-2007	34	13.7	13.7	93.6
	2008-present	8	3.2	3.2	96.8
	DK/NS	8	3.2	3.2	100.0
	Total	249	100.0	100.0	

How many rooms are in your home (excluding bathrooms, but including finished basements)?				
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	6	2.4	2.4	2.4
	5	25	10.0	10.0	12.4
	6	60	24.1	24.1	36.5
	7	45	18.1	18.1	54.6
	8	48	19.3	19.3	73.9
	9	25	10.0	10.0	83.9
	1-3	3	1.2	1.2	85.1
	10 or more	37	14.9	14.9	100.0
	Total	249	100.0	100.0	

Which of the following best describes your home's heating system?	N=249	
None	0	0.0%
Central forced air furnace	194	77.9%
Electric Baseboard	3	1.2%
Heat Pump	52	20.9%
Geothermal Heat Pump	1	0.4%
Boiler / steam heat	3	1.2%
Wood stove / fireplace	5	2.0%
Other (listed below)	9	3.6%
DK/NS	2	0.8%

May total to more than 100% because respondents could give multiple responses.

Home heating system - other, specify (N=9):
- Emergency furnace for backup
- Gas wood burning fire place
- Hybrid unit D/C motor
- I have some small electric heaters in the basement
- Oil furnace
- Pellet stove
- Space heater
- Space kerosene heater
- Two furnaces, one for upstairs and one for downstairs

How old is your heating system?				
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-4 years	63	25.3	25.3	25.3
	5-9 years	60	24.1	24.1	49.4
	10-14 years	48	19.3	19.3	68.7

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15-19 years	29	11.6	11.6	80.3
19 years or older	28	11.2	11.2	91.6
DK/NS	19	7.6	7.6	99.2
Other: one heater 35 years, the other 1-2 years	1	0.4	0.4	99.6
Other: Furnace is 4 years old, radiators much older.	1	0.4	0.4	100.0
Total	249	100.0	100.0	

What is the primary fuel used in your heating system?				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Electricity	66	26.5	26.5	26.5
	Natural Gas	148	59.4	59.4	85.9
	Oil	15	6.0	6.0	92.0
	Propane	9	3.6	3.6	95.6
	Kerosene	1	.4	.4	96.0
	Liquid Petroleum	1	.4	.4	96.4
	Not sure (possibly gas)	1	.4	.4	96.8
	Wood	4	1.6	1.6	98.4
	DK/NS	4	1.6	1.6	100.0
	Total	249	100.0	100.0	

What is the secondary fuel used in your primary heating system, if applicable?				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Electricity	49	19.7	19.7	19.7
	Natural Gas	3	1.2	1.2	20.9
	Oil	3	1.2	1.2	22.1
	Propane	2	.8	.8	22.9
	Electric space heater(s)	5	2.0	2.0	24.9
	Electric furnace	1	0.4	0.4	25.3
	Gas fireplaces (two)	1	0.4	0.4	25.7
	Wood stove / fireplace	3	1.2	1.2	26.9
	DK/NS	6	2.4	2.4	29.3
	None	176	70.7	70.7	100.0
	Total	249	100.0	100.0	

Do you use one or more of the following to cool your home?	N=249	
None, do not cool the home	4	1.6%
Heat pump for cooling	50	20.1%
Central air conditioning	184	73.9%
Through the wall or window air conditioning unit	18	7.2%
Geothermal Heat pump	1	0.4%
Other (listed below)	6	2.4%

May total to more than 100% because respondents could give multiple responses.

Home cooling system - other, specify (N=6):

- Ceiling fans in every room
- Hybrid
- Trees
- Two central air systems, one from 1988 and one from 2012
- Water
- We have central AC but never use it

How many window-unit or through the wall air conditioner(s) do you use?				
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	20	8.0	8.0	8.0
	2	7	2.8	2.8	10.8
	3	4	1.6	1.6	12.4
	None	218	87.6	87.6	100.0
	Total	249	100.0	100.0	

What is the fuel used in your cooling system?	N=249	
Electricity	235	94.4%
Natural Gas	10	4.0%
Oil	0	0.0%
Propane	0	0.0%
Freon (customer offered response)	5	2.0%
None	5	2.0%
DK/NS	2	0.8%

May total to more than 100% because respondents could give multiple responses.

How old is your cooling system?				
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-4 years	68	27.3	27.3	27.3
	5-9 years	59	23.7	23.7	51.0
	10-14 years	44	17.7	17.7	68.7
	15-19 years	33	13.3	13.3	81.9

19 years or older	25	10.0	10.0	92.0
DK/NS	16	6.4	6.4	98.4
Do not have	4	1.6	1.6	100.0
Total	249	100.0	100.0	

What is the fuel used by your water heater?	N=249	
Electricity	112	45.0%
Natural Gas	127	51.0%
Oil	0	0.0%
Propane	2	0.8%
Other	3	1.2%
No water heater	1	0.4%
DK/NS	7	2.8%

May total to more than 100% because respondents could give multiple responses.

Home water heating system - other, specify (N=3):
- Wood boiler
- Solar energy
- Liquid propane

How old is your water heater?				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0-4 years	83	33.3	33.3	33.3
5-9 years	64	25.7	25.7	59.0
10-14 years	38	15.3	15.3	74.3
15-19 years	20	8.0	8.0	82.3
More than 19 years	18	7.2	7.2	89.6
DK/NS	26	10.4	10.4	100.0
Total	249	100.0	100.0	

What type of fuel do you use for indoor cooking on the stovetop or range?	N=249	
Electricity	188	75.5%
Natural Gas	55	22.1%
Oil	0	0.0%
Propane	5	2.0%
Other	0	0.0%
No stovetop or range	1	0.4%

May total to more than 100% because respondents could give multiple responses.

What type of fuel do you use for indoor cooking in the oven?	N=249

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Electricity	198	79.5%
Natural Gas	49	19.7%
Oil	0	0.0%
Propane	3	1.2%
Two ovens: one natural gas, one electric	1	0.4%
No oven	1	0.4%

May total to more than 100% because respondents could give multiple responses.

What type of fuel do you use for clothes drying?	N=249	
Electricity	217	87.1%
Natural Gas	24	9.6%
Oil	0	0.0%
Propane	0	0.0%
DK/NS	2	0.8%
No clothes dryer	6	2.4%

May total to more than 100% because respondents could give multiple responses.

About how many square feet of living space are in your home?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	500 to 999	10	4.0	4.0	4.0
	1000 to 1499	38	15.3	15.3	19.3
	1500 to 1999	45	18.1	18.1	37.3
	2000 to 2499	37	14.9	14.9	52.2
	2500 to 2999	31	12.4	12.4	64.7
	3000 to 3499	22	8.8	8.8	73.5
	3500 to 3999	5	2.0	2.0	75.5
	4000 or more	13	5.2	5.2	80.7
	DK/NS	48	19.3	19.3	100.0
	Total	249	100.0	100.0	

Do you own or rent your home?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Own	232	93.2	93.2	93.2
	Rent	17	6.8	6.8	100.0
	Total	249	100.0	100.0	

How many levels are in your home (not including your basement)?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	One	104	41.8	41.8	41.8
	Two	131	52.6	52.6	94.4
	Three	14	5.6	5.6	100.0

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| Total | | 249 | 100.0 | 100.0 | |

Does your home have a heated or unheated basement?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Heated	148	59.4	59.4	59.4
	Unheated	51	20.5	20.5	79.9
	No basement	50	20.1	20.1	100.0
	Total	249	100.0	100.0	

Does your home have an attic?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	178	71.5	71.5	71.5
	No	71	28.5	28.5	100.0
	Total	249	100.0	100.0	

Are your central air/heat ducts located in the attic?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	40	16.1	16.1	16.1
	No	134	53.8	53.8	69.9
	N/A	75	30.1	30.1	100.0
	Total	249	100.0	100.0	

Does your house have cold drafts in the winter?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	97	39.0	39.0	39.0
	No	152	61.0	61.0	100.0
	Total	249	100.0	100.0	

Does your house have sweaty windows in the winter?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	42	16.9	16.9	16.9
	No	207	83.1	83.1	100.0
	Total	249	100.0	100.0	

Do you notice uneven temperatures between the rooms in your home?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	130	52.2	52.2	52.2
	No	119	47.8	47.8	100.0
	Total	249	100.0	100.0	

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Does your heating system keep your home comfortable in winter?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	232	93.2	93.2	93.2
	No	17	6.8	6.8	100.0
	Total	249	100.0	100.0	

Does your cooling system keep your home comfortable in summer?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	236	94.8	95.2	95.2
	No	12	4.8	4.8	100.0
	Total	248	99.6	100.0	
Missing	System	1	.4		
Total		249	100.0		

Do you have a programmable thermostat?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	160	64.3	64.3	64.3
	No	89	35.7	35.7	100.0
	Total	249	100.0	100.0	

What temperature is your thermostat set to on a typical summer weekday afternoon?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 69 degrees	20	8.0	8.1	8.1
	69-72 degrees	79	31.7	31.9	39.9
	73-78 degrees	113	45.4	45.6	85.5
	Higher than 78 degrees	11	4.4	4.4	89.9
	Off	14	5.6	5.6	95.6
	DK/NS	11	4.4	4.4	100.0
	Total	248	99.6	100.0	
Missing	System	1	.4		
Total		249	100.0		

What temperature is your thermostat set to on a typical winter weekday afternoon?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 67 degrees	56	22.5	22.6	22.6
	67-70 degrees	136	54.6	54.8	77.4
	71-73 degrees	34	13.7	13.7	91.1
	74-77 degrees	14	5.6	5.6	96.8
	78 degrees or higher	4	1.6	1.6	98.4