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Entergy New Orleans SmartView Pilot

Final Evaluation Report

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On behalf of Entergy New Orleans, Inc.

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# Table of Contents

Preface ................................................................................................................................. iii

ES.1 Executive Summary ..................................................................................................... iv
  ES 1.1. Pilot Findings ......................................................................................................... iv
  Impact Analysis ................................................................................................................ iv
  Customer Acceptance and Satisfaction Analysis ............................................................ vi
  Conclusions and Recommendations ................................................................................ ix

1. Scope ................................................................................................................................. 1
  1.1 Project Background ..................................................................................................... 1
  1.2 Project Objectives ....................................................................................................... 1

2. Technical Approach .......................................................................................................... 2
  2.1 Design Elements ......................................................................................................... 2
    2.1.1 Target Population ............................................................................................... 2
    2.1.2 Sample Specification ......................................................................................... 2
    2.1.3 Assignment Method .......................................................................................... 3
    2.1.4 SmartView Test Plan ......................................................................................... 3
    2.1.5 Customer Training and Support Services ........................................................... 10
  2.2 Implementation ............................................................................................................ 13
    2.2.1 Sample Recruitment and Maintenance .............................................................. 13
    2.2.2 Technical Implementation ................................................................................. 17
  2.3 Experimental Design and Evaluation Methods ........................................................... 18
    2.3.1 Event and Energy Impact Analysis ..................................................................... 18
    2.3.2 Event and Energy Impact Analysis ..................................................................... 19

3. Results ............................................................................................................................... 20
  3.1 Impact Evaluation Results ........................................................................................... 20
    3.1.1 Event Impacts ................................................................................................... 21
    3.1.2 Energy Impacts ................................................................................................. 23
    3.1.3 Customer Education Impacts ............................................................................ 27
  3.2 Participant Characteristics ............................................................................................. 27
    3.2.1 Family Size and Income Distribution ............................................................... 27
    3.2.2 Housing Types .................................................................................................. 29
    3.2.3 Education and Other Participant Characteristics ............................................. 29
  3.3 Post-Pilot Survey Results ............................................................................................. 30
    3.3.1 Participant Expectations .................................................................................... 31
    3.3.2 Views on Training and Support ........................................................................ 31
    3.3.3 Views on Technology ....................................................................................... 33
    3.3.4 Participant Involvement and Awareness ............................................................ 37
    3.3.5 Participant Satisfaction and Areas for Improvement .......................................... 42
3.3.6 Impacts......................................................................................................................... 44
3.4 Feedback from Additional Stakeholders ....................................................................... 47

4. Conclusions and Recommendations .............................................................................. 48
   4.1 ENO SmartView Load Impacts...................................................................................... 49
   4.2 ENO SmartView Customer Experience ...................................................................... 50
   4.3 Recommendations ......................................................................................................... 51
      4.3.1 Forecasts of Future Program Participation.............................................................. 51
      4.3.2 Technology/Program Performance and Cost Review ............................................ 52
      4.3.3 Additional Energy and Non-Energy Benefit Analysis ............................................. 52
      4.3.4 Cost-Benefit Analyses ............................................................................................. 53

Appendix A. Impact Analysis Data Requirements and Methodology................................. 54
   A.1 Event Impact Analysis .................................................................................................... 54
   A.2 Energy Impact Analysis ................................................................................................ 56

Appendix B. Impact Analysis Detailed Results.................................................................... 59

Appendix C. Technology Interfaces....................................................................................... 65

Appendix D. Enrollment and Training Materials................................................................. 67

Appendix E. Additional Post-Pilot Survey Results................................................................. 119
Preface

Navigant has prepared this evaluation of Entergy New Orleans’s (ENO) Smart Grid pilot in fulfillment of reporting requirements for the U.S. Department of Energy’s (DOE) Smart Grid Investment Grant program. The format of this document follows DOE’s Technical Performance Report (TPR) guidelines (June 17, 2011). The information contained in this report also addresses issues of the New Orleans City Council.
ES.1 Executive Summary

In October 2009, the U.S. Department of Energy (DOE) selected Entergy New Orleans, Inc. (ENO) to receive a $5 million stimulus grant for a pilot project aimed at helping low-income customers better manage their electric bills and to provide the company with valuable information regarding the acceptance of customers in this demographic of several specific Advanced Metering Infrastructure (AMI)-enabled demand-response programs. The stimulus grant was part of an $800 billion economic stimulus bill passed by Congress, with some projects targeted to improve utility infrastructure. DOE received approximately 400 applications for its Smart Grid Investment Grant stimulus funding, with only 100 projects selected to receive funding.


ENO developed and implemented the Smart Grid pilot program, known as “SmartView,” to customers, beginning in June of 2011 to evaluate customer behavior and the impacts of peak time rebates, air conditioning load controls, and other enabling technologies with the potential to reduce customer electricity usage and peak demands. The pilot targeted ENO’s low-income customers and included smart meters, in-home displays (IHD), programmable communicating thermostats (PCT), and Web portals. ENO’s SmartView pilot was the only DOE-funded Smart Grid technology pilot program exclusively focused on low-income customer segments.

ENO’s intent is for the SmartView pilot to serve as a customer behavior study to be used in potentially developing future programs that will assist and empower the low-income demographic segment in managing its energy consumption. Efforts like the SmartView pilot have the potential to be particularly impactful for low-income populations, as the cost of electricity in the low-income segments is a high percentage of customers’ overall income. Additionally, the findings of the SmartView pilot could be highly useful for other utilities in developing Smart Grid programs for low-income customers.

ES 1.1. Pilot Findings

The pilot was designed to assess energy and load reduction impacts, and the functionality of smart meter technologies utilizing the Zigbee-based two-way communications protocol for load control, peak time rebate, and customer information. Meeting these objectives required an evaluation approach that could achieve the following objectives:

1. Accurately estimate the reductions in peak load and overall energy consumption
2. Assess customer acceptance and satisfaction

Impact Analysis

The purpose of the impact analysis is to quantify changes in energy demand and overall consumption resulting from participation in the pilot program. The pilot program design is intended to affect both the amount of energy consumed and the timing of consumption (for event-based treatments). Based on
participant monthly billing data from May 2010 through September 2012 and interval demand data from April 2011 through September 2012, major findings of the impact analysis are shown in Table ES-1 and Figure ES-2.

### Table ES-1. Event Impact Summary

<table>
<thead>
<tr>
<th>Pilot Group</th>
<th>Air Conditioning</th>
<th>Number of Participants Included in Model</th>
<th>Demand Impacts During Event</th>
<th>Bill Savings Per Event ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACLM¹</td>
<td>All</td>
<td>318</td>
<td>-16.3% -0.40 ***</td>
<td>$0.11</td>
</tr>
<tr>
<td>PTR²</td>
<td>All</td>
<td>375</td>
<td>-10.6% -0.25 ***</td>
<td>$0.41</td>
</tr>
<tr>
<td></td>
<td>Central AC</td>
<td>266</td>
<td>-11.6% -0.29 ***</td>
<td>$0.48</td>
</tr>
<tr>
<td></td>
<td>No Central AC</td>
<td>109</td>
<td>-7.6% -0.13 ***</td>
<td>$0.22</td>
</tr>
</tbody>
</table>

*** - 99% Confidence; ** - 95% Confidence; * - 90% Confidence; No Stars - Less Than 90% Confidence

### Table ES-2. Energy Savings Summary

<table>
<thead>
<tr>
<th>Pilot Group</th>
<th>Number of Participants Included in Model</th>
<th>Daily Energy Use Impacts During Summer</th>
<th>Daily Energy Savings During Summer with Face-to-Face Training</th>
<th>Daily Bill Savings During Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTR</td>
<td>322</td>
<td>-0.4% -0.22</td>
<td>N/A (N/A)</td>
<td>N/A</td>
</tr>
<tr>
<td>Portal³</td>
<td>311</td>
<td>-1.8% -0.91</td>
<td>N/A (N/A)</td>
<td>N/A</td>
</tr>
<tr>
<td>ACLM</td>
<td>315</td>
<td>1.0% 0.58</td>
<td>-6.4% -3.65 *</td>
<td>$0.34</td>
</tr>
<tr>
<td>IHD⁴</td>
<td>2073</td>
<td>1.6% 0.88</td>
<td>-7.7% -4.26 ***</td>
<td>$0.40</td>
</tr>
</tbody>
</table>

*** - 99% Confidence; ** - 95% Confidence; * - 90% Confidence; No Stars - Less Than 90% Confidence

Although energy savings were not statistically significant for some of the treatment groups, 78 to 90% of participants believed they saved money as a result of the program.⁵ Figure ES-1 compares customers’ perceived bill impacts to actual, non-weather-normalized, savings.⁶ The data indicates that the reality matched well with perceptions, as 58 to 67% of customers actually saved energy. Although some participants used more energy during the pilot period, yet believed they saved money, it is possible that

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¹ “ACLM” refers to A/C Load Management treatment group.
² “PTR” refers to Peak Time Rebate treatment group.
³ “Portal” refers to the Web Portal Only treatment group.
⁴ “IHD” refers to the In-Home Display treatment group.
⁵ From Post-Pilot Survey data (n = 1,440, of 1,513 completed surveys for these groups).
⁶ Actual savings were calculated using monthly billing data, unadjusted for weather differences, from 2010 - 2012. The average daily usage for each month in 2011 and 2012 was compared to the corresponding month during 2010. A customer was considered to have savings if their average daily usage during the pilot (2011 and 2012) was less than 2010. Since customer perception typically does not consider the effects of weather and other factors on usage from one year to the next, perceived customer savings should match well with actual usage.
they interpreted the question as relative to usage that would have occurred had they not exercised conservation actions learned through the SmartView Pilot.

**Figure ES-1. Perceived Energy Savings vs. Actual Energy Savings**

![Figure ES-1. Perceived Energy Savings vs. Actual Energy Savings](image)

Customer Acceptance and Satisfaction Analysis

ENO obtained customer feedback on the pilot through post-pilot participant surveys. Based on the surveys, it is evident that participants had a very positive experience during the SmartView pilot. Participants had high expectations for the program in terms of money savings and as a source of valuable information about ways in which they could become more energy efficient. Many expressed satisfaction with the program with regard to both bill savings and information provided.

**Views on Program Support**

Almost all respondents—99%—felt that customer service representatives were “Very Helpful” or “Somewhat Helpful,” with the majority of every treatment group responding “Very Helpful” (Figure ES-2).
Figure ES-2. How helpful were the pilot program’s customer service representatives?

![Bar chart showing customer service helpfulness](chart.png)

- A/C Load Management: 1% Very Helpful, 16% Somewhat Helpful, 83% Not Helpful
- Peak Time Rebate: 20% Very Helpful, 79% Somewhat Helpful, 1% Not Helpful
- IHD: 19% Very Helpful, 81% Somewhat Helpful, 0% Not Helpful
- Portal Only: 35% Very Helpful, 65% Somewhat Helpful, 0% Not Helpful

n = 1,149, of 1,513 completed surveys for these groups

**Participant Satisfaction**

The drivers of participant satisfaction with the program and technologies are presented in Figure ES-3. The majority of all treatment groups cited *Money Savings* as the top benefit of participation, with *Energy Efficiency Information Received* also mentioned by approximately a quarter of all participants. In the open-response field, participants commented that the program empowered and enabled them to control and monitor their own usage. Participants also cited the helpfulness of the customer service representatives.
When asked if they would like the program to continue, the majority of PTR, IHD, and Portal Only participants responded that they would be interested in having the program continue into the future (Figure ES-4). Additionally, in the comments section of the survey, many participants indicated that they really liked the program and that they hoped it would continue or that there would be future opportunities to participate in similar programs.
Conclusions and Recommendations

SmartView pilot findings are quite positive and compare very favorably to other Smart Grid pilots. In fact, the SmartView peak demand treatment groups (ACLM and PTR) achieved 11–16% peak event load reduction, as good as or better than comparable pilots focusing on all residential customers at other utilities. Energy reductions were statistically significant for some technologies (PTR, IHD), and are quite large for certain subgroups (IHD, ACLM) who received face-to-face training. Again, the energy savings from these programs are consistent with, or greater than, results from similar pilots. SmartView compared well to other studies in terms of overall customer satisfaction and customer views of the usefulness of the technologies (particularly for IHD). SmartView fared better than other pilots in terms of web portal usage.

At a high level, there were many key benefits of the SmartView program beyond the energy savings, peak demand impacts and customer experience benefits analyzed in this report. These include:

- ENO’s community engagement approach to solicitation and education during the SmartView pilot strengthened the Company’s relations with community partners. The SmartView pilot also succeeded in raising awareness throughout the New Orleans community of the capabilities and benefits of AMI technologies.

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*The other studies referenced here will be discussed in more detail in the “Conclusions and Recommendations” section.*
• The SmartView pilot contributed to building technology expertise at ENO. The pilot allowed the Company to test and explore the benefits of new Smart Grid technologies.

• ENO has a better understanding how to develop an extensive and well-developed customer support services infrastructure, and the benefits in terms of impacts, customer experiences, and overall program performance.

• Finally, the program provided ENO with valuable information on a sub-group of its customer base, namely its low-income customers. The SmartView pilot provided evidence that the low-income population can benefit from the use of smart grid technologies.

Additional research and analysis is needed to support additional Smart Grid investment decisions, and associated regulatory and stakeholder oversight processes. In particular, Navigant recommends that ENO conduct the following activities to determine the potential value of additional Smart Grid investments: forecasts of future program participation, updates of Smart Grid technology, program performance and costs in this rapidly changing marketplace, and additional energy and non-energy benefits analysis. All of these are critical inputs into cost-benefit analyses necessary to support future investment decisions.

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8 According to Navigant Research, costs for smart meters, PCTs, and IHDs have been declining by 1 to 5% per year, and are expected to continue to decline by 1 to 9% annually over the next several years. From Navigant Research reports for Smart Meters, Smart Thermostats and Home Energy Management, www.NavigantResearch.com.
1. Scope

1.1 Project Background

In October 2009, the U.S. Department of Energy selected Entergy New Orleans, Inc. to receive a $5 million stimulus grant for a pilot project aimed at helping low-income customers better manage their electric bills and to provide the company with valuable information regarding customer acceptance of demand response (DR) programs. The stimulus grant was part of an $800 billion economic stimulus bill passed by Congress, with some projects targeted to improve utility infrastructure. DOE received approximately 400 applications for its Smart Grid Investment Grant stimulus funding, with only 100 projects selected to receive funding.


ENO developed and implemented the Smart Grid pilot program, known as “SmartView,” beginning in June of 2011 to evaluate customer behavior and the impacts of peak time rebates, air conditioning load controls, and enabling technologies on customer electricity usage and peak demands. The pilot targeted ENO’s low-income customers and included smart meters, in-home displays, programmable communicating thermostats and Web portals. ENO’s SmartView pilot has been the only DOE-funded Smart Grid technology pilot program exclusively focused on low-income customer segments. As such, the program serves to inform future Smart Grid technologies programs about the benefits and challenges associated with targeting low-income energy customers.

1.2 Project Objectives

The primary goal of the ENO SmartView pilot is to test low-income customer response to certain DR programs enabled by AMI technology. These programs include rebates and incentives for peak load reduction and load control, and the availability of near real-time energy usage information through a table top in-home display, the display of the programmable communicating thermostat, or a web portal to measure the impacts to customer’s energy consumption patterns. The primary measures for gauging the success of these initiatives are: customers’ overall energy use measured in kilowatt-hours (kWh), changes in customers’ load profiles and reduction in peak usage measured in kW, and the customers’ overall satisfaction and involvement with the programs.

A secondary measure includes the relative impacts that differing levels of program education have on the primary measures and customer satisfaction.
2. Technical Approach

2.1 Design Elements

2.1.1 Target Population

The target population for this pilot consisted of ENO’s lower income electric customers on the Eastbank of Orleans Parish. Lower income is defined as at or below 80% of the U.S. Department of Housing and Urban Development (HUD) published area median income based on family size, as detailed in Table 2-1.

<table>
<thead>
<tr>
<th>Income Limits for 2009 (Based On Area Median Income)</th>
<th>Extremely Low Income</th>
<th>Very Low Income</th>
<th>Low Income</th>
<th>Median Income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30.00%</td>
<td>50.00%</td>
<td>80.00%</td>
<td>100.00%</td>
</tr>
<tr>
<td>1 Person</td>
<td>12,570</td>
<td>20,950</td>
<td>33,520</td>
<td>41,900</td>
</tr>
<tr>
<td>2 Person</td>
<td>14,340</td>
<td>23,900</td>
<td>38,240</td>
<td>47,800</td>
</tr>
<tr>
<td>3 Person</td>
<td>16,140</td>
<td>26,900</td>
<td>43,040</td>
<td>53,800</td>
</tr>
<tr>
<td>4 Person</td>
<td>17,940</td>
<td>29,900</td>
<td>47,840</td>
<td>59,800</td>
</tr>
<tr>
<td>5 Person</td>
<td>19,380</td>
<td>32,300</td>
<td>51,680</td>
<td>64,600</td>
</tr>
<tr>
<td>6 Person</td>
<td>20,820</td>
<td>34,700</td>
<td>55,520</td>
<td>69,400</td>
</tr>
<tr>
<td>7 Person</td>
<td>22,260</td>
<td>37,100</td>
<td>59,360</td>
<td>74,200</td>
</tr>
<tr>
<td>8 Person</td>
<td>23,670</td>
<td>39,450</td>
<td>63,120</td>
<td>78,900</td>
</tr>
<tr>
<td>9 Person</td>
<td>25,110</td>
<td>41,850</td>
<td>66,960</td>
<td>83,700</td>
</tr>
<tr>
<td>10 Person</td>
<td>26,550</td>
<td>44,250</td>
<td>70,800</td>
<td>88,500</td>
</tr>
<tr>
<td>11 Person</td>
<td>27,990</td>
<td>46,650</td>
<td>74,640</td>
<td>93,300</td>
</tr>
<tr>
<td>12 Person</td>
<td>29,430</td>
<td>49,050</td>
<td>78,480</td>
<td>98,100</td>
</tr>
</tbody>
</table>

This New Orleans lower income population is well-defined geographically by 2000 census block income data adjusted to 2009. Using geographic information system (GIS) mapping technology to match customer addresses to census blocks, ENO identified the population for solicitation. This matching process produced approximately 48,000 ENO customers as the target population.9

2.1.2 Sample Specification

ENO utilized an opt-in recruitment model to develop a study sample. Marketing material was distributed to customers starting on December 1, 2010. Interested customers filled out enrollment surveys and submitted required documentation by mail or to the enrollment or customer care centers. ENO initially calculated a target sample of 7,400, based on an optimistic participation rate of

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9 In addition to meeting the income criteria, all participants were required to have at least 12 months of usage history at their current address to be eligible to participate in the pilot.
approximately 15%. Ultimately, 4,689 customers enrolled in ENO’s SmartView pilot, equating to a participation rate of approximately 10%, which is still very high.

2.1.3 Assignment Method

Customers were asked to indicate their program preferences during the enrollment phase of the pilot. Participants were assigned to treatment groups in the order that their applications were received and according to their stated preferences, as long as they met all the criteria for a given program. If all of a participant’s preferred treatment groups were filled, he or she was assigned to the control pool. Customers had the ability to choose the control pool as a preferred assignment.

In addition to income and length of residency requirements, customers and dwellings had to meet the technical criteria in Table 2-2 in order to participate in the pilot.

<table>
<thead>
<tr>
<th>Table 2-2. Additional Requirements for Pilot Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/C Load Management</td>
</tr>
<tr>
<td>• Participant’s dwelling must be of suitable construction such that the PCT can maintain wireless communications with the customer’s AMI meter. This will restrict participants to single-family homes, duplexes, and possibly tri-plexes and four-plexes.</td>
</tr>
<tr>
<td>• Participants must have a properly functioning central air conditioning unit.</td>
</tr>
<tr>
<td>• For rental residents, participant must have written consent from the homeowner for the installation of the smart thermostat.</td>
</tr>
<tr>
<td>Peak Time Rebate</td>
</tr>
<tr>
<td>• Participant’s dwelling must be of suitable construction such that the IHD device can maintain wireless communications with the customer’s AMI meter. This will restrict participants to single-family homes, duplexes, and possibly tri-plexes and four-plexes.</td>
</tr>
<tr>
<td>IHD</td>
</tr>
<tr>
<td>• Participant’s dwelling must be of suitable construction such that the IHD device can maintain wireless communications with the customer’s AMI meter. This will restrict participants to single-family homes, duplexes, and possibly tri-plexes and four-plexes.</td>
</tr>
<tr>
<td>Web Portal</td>
</tr>
<tr>
<td>• Participants must have Internet access either at home, at work, or some other available location.</td>
</tr>
</tbody>
</table>

2.1.4 SmartView Test Plan

The SmartView pilot program offerings consisted of 1) monetary incentives and 2) a set of one or more technologies to enable interval metering, provision of enhanced customer information about electricity consumption and month-end bill estimates, and (for some participants) automated load response. ENO installed AMI meters in the homes of all participants, including those in the control pool. Each of the four customer treatment groups in the pilot, as described below, received a unique combination of rates or other incentives and technologies in order to test the impact of different technologies and monetary incentives on load reduction. Table 2-3 presents a summary description of the four treatment groups, including the monetary incentives and technologies allocated to each group.
### Table 2-3. SmartView Pilot Customer Treatment Groups

<table>
<thead>
<tr>
<th>Treatment Group</th>
<th>Description of Treatment Group</th>
<th>Monetary Incentives</th>
<th>Technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A/C Load Management</strong></td>
<td>A/C is cycled off in ten-minute increments twice per hour during the event hours (1-4 p.m. on event days); No prior notification of events</td>
<td>Standard</td>
<td>IHD Access</td>
</tr>
<tr>
<td></td>
<td><strong>Desired Behavior:</strong> No adjustment to A/C during event; general increase in energy-saving habits</td>
<td>$12 credit/month; $25 enrollment and $25 completion credits</td>
<td>X</td>
</tr>
<tr>
<td><strong>Peak Time Rebate</strong></td>
<td>Participants are incentivized to reduce energy usage during the hours of 1-6 p.m. on PTR event days; Notification by 5 p.m. on the day prior to event</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Desired Behavior:</strong> Shift energy use to off-peak period; general increase in energy-saving habits</td>
<td>PTR of $0.23821 per kWh for reductions made during Peak Time Events</td>
<td>$25 enrollment and $25 completion credits</td>
</tr>
<tr>
<td><strong>IHD</strong></td>
<td>Access to current consumption, estimated current bill, projected month-end bill via the IHD. Usage numbers are real-time and bill estimate updates once at end of day.</td>
<td>Standard</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td><strong>Desired Behavior:</strong> General increase in energy-saving habits</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Web Portal</strong></td>
<td>Access to their detailed usage data and energy-saving information via web portal. Usage numbers update 4x/day and bill estimate updates once at end of day.</td>
<td>Standard</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td><strong>Desired Behavior:</strong> General increase in energy-saving habits</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*All groups received access to the Web Portal. See below for a more detailed description of the rates and equipment provided to the various test groups.

*b Air conditioning load management (ACLM) refers to remotely controlling the duty cycle of participants’ central AC systems via the programmable communicating thermostat.

*c ENO installed AMI meters at 4,689 homes.
2.1.4.1 Pilot Participation Rates

Out of the total sample of 4,689 participants, ENO determined that the target treatment groups would each be composed of approximately 400 customers with the exception of IHD, where the company wanted to have more than 2,500 customers in order to capture differences in training methods across the participants receiving this technology without any financial incentive. To ensure a robust control pool was available for evaluation purposes, ENO’s target size for the Control group was approximately 1,000 participants. The actual participation numbers and final allocation of participants by treatment group is reported in Table 2-4.

Table 2-4. Pilot Participants by Treatment Group

<table>
<thead>
<tr>
<th>Participants as of 6/1/2011</th>
<th>Total Pilot Participants</th>
<th>IHD</th>
<th>Web Portal</th>
<th>PTR</th>
<th>ACLM</th>
<th>Control Pool</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,689</td>
<td>2,566</td>
<td>393</td>
<td>400</td>
<td>351</td>
<td>979</td>
<td></td>
</tr>
</tbody>
</table>

2.1.4.2 Monetary Incentives

As detailed in the above table, in addition to offering a variety of technologies to pilot participants, ENO experimented with a range of monetary incentives. This allows for the analysis of the impacts of certain incentives on such factors as program attrition, participant engagement and acceptance, and measured energy savings. The only treatment group to receive a rate other than the standard rate was the PTR group, which received a rebate of $0.23 per kWh for reductions made during peak time events, adjusted by a temperature humidity index factor. The rebate was based on ENO’s hourly capacity utilization methodology which allocates the embedded production demand revenue requirement to each hour in a test year.

The ACLM treatment group was given a fixed bill credit of $12/month for the four months of the ACLM pilot (June 2011 through September 2011). Both the ACLM and PTR groups were also given enrollment and completion credits of $25 in order to ensure that participants completed post-pilot surveys.

Due to the necessity of maintaining a robust control group throughout the AMI pilot, participants in the control pool were also given $25 enrollment and completion credits. Some control participants did complete a shortened post-pilot survey. Control group surveys results are not included in the post-pilot surveys results section of this report; however, control group survey responses (along with those of treatment group participants) are incorporated into impact models—as additional explanatory variables—the results of which are detailed in the “Impact Analysis” section of this report. IHD and Web Portal Only treatment groups did not receive any monetary incentives.

2.1.4.3 Smart Grid Technology

ENO offered the following technology to SmartView participants:

- **AMI meter**: ENO installed AMI meters (Sensus iCon AMI meter) on all participant homes. An AMI smart meter is an advanced, two-way communicating meter that measures and stores

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10 Of the approximately 700 AC units tested, only 351 met the minimum performance requirements.
interval usage data and then communicates that information over a wireless network to a receiver, after which it is wired backhaul to the local utility for monitoring and billing purposes.

- **In-home energy display:** The display is a digital wireless (ZigBee protocol) device that shows real-time power demand (kW), rate of energy use (kWh/day), billing-period electricity consumption (kWh), and current and projected bill amounts. The display can be used by customers to help identify measures to lower consumption, and it serves as an additional communications vehicle for ENO to inform customers of critical events (the backlight turns red).

- **Programmable communicating thermostat:** Participants receiving a wireless (ZigBee protocol) smart thermostat are able to program temperature set points manually. The PCT allows ENO to temporarily interrupt the communication from the PCT to the compressor for ACLM customers during events. The timing of the compressor cycling is completely random between customers and from one event day to the next. However, in order to avoid back-to-back cycles, the start time of the compressor cycle is the same for all three hours of the day. The technology serves to automatically reduce load to avoid heavy consumption during the highest priced hours or when a customer is eligible to earn a rebate. Any changes made to thermostat settings supersede the previous load control signal. As with the IHD, the PCT also turns red to indicate an event.

- **Web portal:** All participants with Internet access were able to use ENO’s browser-based Internet portal. The portal displays detailed tables and charts on energy usage profiles, featuring such data as previous-day interval data and estimated billing information. Hourly interval energy usage information was updated four times daily for use in analyzing consumption trends and patterns by hour, day, week or month.

### 2.1.4.4 SmartView Pilot Systems

#### a. AMI Systems

The SmartView pilot utilized the Sensus FlexNet solution, which can provide real-time information for electricity, water, gas, and combination systems via a primary-use spectrum licensed by the Federal Communications Commission (FCC). FCC licensed spectrum decreases interference with meter communications, which is especially important in a heavily populated metropolitan area.

FlexNet is a two-way fixed network AMI system that utilizes Radio Frequency-based (RF) communication technology. Its single-tier design creates a communications network where meters communicate directly to tower-based data collector transceivers. This approach creates a streamlined infrastructure that provides complete RF coverage of large geographical areas and eliminates complex databases, algorithms and store-and-forward nodes that are required with unlicensed mesh networks. Although this is a point to multi-point system, the FlexNet enabled meters are capable of functioning in a “buddy mode” similar to a mini-MESH. This proved useful in the tight confines of the French Quarter where signal strength was more of a challenge.

The SmartView pilot network comprises a local RF network and a Regional Network Interface (RNI). The local RF network consists of FlexNet SmartPoint communication modules in each meter and Tower Gateway Base Stations (TGB) at each tower (See Figure 2-1 and Figure 2-2). In this pilot there are five TGBs at existing radio towers with antennas installed at heights ranging from 200 to 650 feet (
Figure 2-3). The data backhaul is via Entergy’s private fiber optic network with the exception of one private leased circuit. The TGBs can store 30 days of data and have eight hours of battery backup if the primary source of power is interrupted.

The use of these five towers resulted in excellent signal propagation and solid system performance, with read rates in excess of 99.5% (Figure 2-4). The RNI receives and stores the meter data collected by the TGBs. The RNI also monitors the system health of the TGBs, while keeping a 60-day log of metering data.

The FlexNet system offers Programmable Communicating Thermostats (PCT), In Home Displays (IHD), and Load Control Modules (LCM) for HVAC, pool pumps, water heaters, etc. These products are offered by utility-supported third parties, along with traditional home automation vendors. The FlexNet enabled HAN devices for the ENOI SmartView Pilot was sourced through a partnership with Home Automation Inc. (HAI), a long-time leader in home automation.11

HAI offers a full suite of products that cover any type of Home Area Network (HAN) application including IHDs, LCMs, and PCTs that are designed to use the ZigBee Smart Energy, Sensus FlexNet, and other standard and proprietary RF network technologies for communication.

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11 Although some advanced meter functions were not in the pilot scope and thus not enabled, such as remote disconnect, meter tampering, outage detection, etc., this functionality may be used in the future.
Figure 2-2. Tower Gateway Base Station (Outdoor Enclosure)

Figure 2-3. AMI Systems Overview
b. **Customer Systems**

ENO developed an interface from the Sensus RNI to Entergy’s existing meter data management system. Due to the geographic spread of the pilot participants, existing manual meter reading processes were not modified. These meters continued to be read manually, but customers enrolled in the pilot were billed from the AMI data. In addition to billing, the AMI data fed the customer web portal pages that were integrated into Entergy’s existing web portal.

Calculation of the customer’s estimated bill was done on the host systems and transmitted as text to the Entergy web portal and IHD/PCT each night. Data for current usage and usage graphs on the IHD/PCT were transmitted in real time from the AMI meter. Notification of an event, which was indicated on the device by changing the backlight color to red, was set on demand through the Sensus system.

c. **Other Systems**

Due to the unique requirements of this pilot as compared to ENO’s normal operations, customer enrollment data was managed via a new database and browser-based application purpose-built for the pilot. Although Entergy’s phone center hardware was used to provide call statistics, information on

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12 The pink area represents the population of meters on which the propagation study was performed, not actual participants.
each customer contact was also stored in the enrollment database in order to retain the details specific to the pilot.

2.1.5 Customer Training and Support Services

In August 2010, ENO invited New Orleans area nonprofit and community development organizations to attend a project scoping meeting. The intent of the meeting was to inform these organizations of the ways in which they could be involved in serving the low-income population of New Orleans via SmartView program efforts (solicitation, enrollment, customer training, and support). Eighteen nonprofit and community development organizations attended the meeting. Following this meeting, Entergy sent out a Request for Proposal (RFP) to all interested organizations. Seven nonprofit organizations responded to the RFP and all were contracted at various levels to support the project.

Participating organizations included:

- Total Community Action (TCA) assisted with solicitation and enrollment, and provided training facility.
- Catholic Charities of New Orleans assisted with solicitation and enrollment, and provided a training facility.
- New Orleans Council on Aging assisted with solicitation and enrollment, and provided a training facility.
- Neighborhood Development Foundation (NDF) assisted with solicitation and enrollment, and provided a training facility.
- Kingsley House of New Orleans assisted with solicitation and enrollment, and provided a training facility.
- Green Light of New Orleans assisted with solicitation and enrollment.
- Dillard University’s Community Development Center provided a training facility.

Contracts varied between organizations but they all provided a cost structure to incentivize high enrollment rates and covered cost of materials, supplies, equipment, and facilities, among other items. Contracted nonprofit organizations were trained on the program and the tracking database. Training consisted of a four-hour classroom training followed by training at the partners’ respective locations.

An Entergy Customer Service Manager was assigned to each organization. Throughout the enrollment period, site visits were made to address any questions and in order to ensure consistency and effectiveness throughout the program support process. Additionally, technical support was available to Community Partners via the ENO Support Center which was a separate phone center staffed by agents who were specially trained for the SmartView pilot.

2.1.5.1 Pre-Pilot Training

On the Enrollment Form, all participants were asked to identify their preferred level of training. The pilot featured three levels of customer education:

- **Face-to-Face training (“High Touch”)**: ENO and partners conducted 32 training sessions at various contracted nonprofit locations throughout the city from 4/12/11 through 5/26/11, training 518 customers. In addition, some customers visited the Eastbank Customer Care Center (CCC) for face-to-face training.
- **Over-the-Phone training (“Medium Touch”):** ENO held ten conference call type training sessions the week of 5/23/11 with 170 customers participating. In addition, customers called the Support Center to receive over-the-phone training.

- **Mail Instructions (“Low Touch”):** All customers who requested mailed instructions or did not specify a training preference were mailed instructions. The cover letter included the option for the customer to call the support center or visit ENO at the CCC if they needed further assistance. ENO mailed training materials to almost 2,000 customers.

Many more participants signed up for face-to-face training than actually attended. The final allocation of participants in high touch versus medium and low touch training is depicted in Figure 2-5.

![Figure 2-5. Final Allocation of Participants in Face-to-face and Non Face-to-Face Training](image)

<table>
<thead>
<tr>
<th>ACLI</th>
<th>Peak Time Rebate</th>
<th>IHD</th>
<th>Portal Only</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>78%</td>
<td>82%</td>
<td>87%</td>
<td>96%</td>
<td>99%</td>
</tr>
</tbody>
</table>

The content of the training materials followed a flexible modular approach so that training sessions could be customized by choosing the appropriate modules for the audience. This method also made updating materials easier because an updated module could be sent to select participants without having to reproduce an entire manual. As shown in Table 2-5, ENO developed a total of 22 SmartView training modules to support its education efforts.14

<table>
<thead>
<tr>
<th>Module</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 1</td>
<td>Overview: ENO SMARTVIEW Project Background</td>
</tr>
<tr>
<td>Module 2</td>
<td>Overview: SMARTVIEW Program Summary</td>
</tr>
<tr>
<td>Module 3</td>
<td>Overview: Program A - Understanding the IHD Program</td>
</tr>
<tr>
<td>Module 4</td>
<td>Overview: Program B - Understanding the Portal Program</td>
</tr>
</tbody>
</table>

13 Twelve control group participants attended face-to-face training. This is likely due to the fact that these participants signed up for the training before they were aware of their group assignment.

14 The training was also posted on the ENO web site. Copies of the AMI pilot training materials are provided for reference in Appendix D.
2.1.5.2 Continuing Pilot Support

Although the primary communications effort for the AMI pilot related to solicitation, education, and training in the initial stages of the program, ENO’s communication plan included both proactive outbound calls, as well as, support for participants if and when they experienced technical or other issues throughout the pilot. During the course of the pilot, additional support was provided to program participants by way of the following:

- Dedicated call center (ENO Support Center)
- Toll-free number
- Customer Care Center
- Community partner involvement

There were more than twice as many outbound calls than inbound calls through the call center in 2011, and more than five times as many outbound calls than inbound calls in 2012. The quantity of both inbound and outbound calls generally peaked in the months of June through September. Overall call volume decreased by 62% between 2011 and 2012, and outbound call volume decreased by 55% during this time. Figure 2-6 and Table 2-6 provide additional details on outbound and inbound call volumes, as well as the primary reasons for calls during the course of the pilot.

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15 In addition to call center outreach and support, welcome packets, additional education, reminders, tips, and program updates were also provided via mail-outs and emails during the program.
Outbound Calls

32,610

- Enrollment and Training
- PTR event notifications
- Courtesy check-ins during events
- Schedule and to assess effectiveness of field visits
- Ensure customers knew how to adjust thermostat settings

14,823

- Calls to ACLM participants regarding swap out of thermostat
- Courtesy reminders and check-ins relating to device functioning
- Notification of second set of PTR events
- Encouragement to all groups (incl. Control) to complete post-pilot survey

Inbound Calls

14,355

- Training (for medium and low touch)
- Provisioning device
- Technical support

2,816

- Technical support

Total Call Volume

46,965

17,639

*PTR participants were notified of events by phone the evening prior to an event day. For ACLM events, participants were not notified; ACLM events were predetermined at the beginning of the program.

2.2 Implementation

2.2.1 Sample Recruitment and Maintenance

To develop messages for their SmartView pilot project, ENO held two customer focus groups structured as one-on-one interviews to determine customer acceptance of the solicitation letter, screening process,
application, marketing materials, and approach. The first session was conducted in September 2010. The information was then modified based on customer feedback and a second session took place in October to re-evaluate the messages.

Solicitation for the AMI pilot began in December of 2010 and continued through January 2011. ENO utilized the following methods of outreach to solicit the interest in the AMI pilot from the target population.

**Table 2-7. Solicitation Types and Distribution Methods**

<table>
<thead>
<tr>
<th>Solicitation Type</th>
<th>Distribution Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posters, Brochures, Flyers</td>
<td>Placement in ENO customer care centers, partnership organizations offices, and in solicitation letter mail-out</td>
</tr>
<tr>
<td>Solicitation Letters, E-mails</td>
<td>Mail outs and e-mails</td>
</tr>
<tr>
<td>ENO Bill Inserts/Bill Messages</td>
<td>Included in monthly bills</td>
</tr>
<tr>
<td>“Entergy Notes” Newsletter</td>
<td>Community meetings, posted on the ENO website and distributed by e-mail</td>
</tr>
<tr>
<td>Local Media</td>
<td>Radio, News, Government Access Television</td>
</tr>
<tr>
<td>Focus Groups</td>
<td>In-person meetings</td>
</tr>
<tr>
<td>Community Meetings &amp; Events</td>
<td>In-person meetings/events</td>
</tr>
<tr>
<td>Entergy’s “Inside Entergy” Article</td>
<td>Website</td>
</tr>
<tr>
<td>Outbound Calls</td>
<td>Automatic dialing system, AMI phone center reps</td>
</tr>
</tbody>
</table>

The enrollment survey administered to AMI pilot enrollees gathered information on primary solicitation methods used by ENO and Community Partners. Figure 2-7 displays the allocation of recruitment types for primary recruitment methods and other methods mentioned by participants, respectively. The importance of Community Partners in the solicitation and recruitment process is evident.

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16 Marketing materials are included in Appendix D.
2.2.1.1 Participant Attrition

Participant attrition over the course of the SmartView pilot is summarized in Table 2-8. Six percent of pilot participants left the program after the summer of 2011, and 12% left over the course of the next year.\(^\text{17}\) There were some slight differences among the program groups, with ACLM having the lowest attrition rate.

<table>
<thead>
<tr>
<th>Pilot Treatment Groups</th>
<th>Total Pilot Participants</th>
<th>IHD</th>
<th>Web Portal</th>
<th>PTR</th>
<th>ACLM</th>
<th>Control Pool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate of Attrition (6/2011–9/2011)</td>
<td>6%</td>
<td>7%</td>
<td>5%</td>
<td>7%</td>
<td>3%</td>
<td>4%</td>
</tr>
<tr>
<td>Rate of Attrition (10/2011–9/2012), for applicable programs</td>
<td>12%</td>
<td>11%</td>
<td>15%</td>
<td>13%</td>
<td>N/A</td>
<td>13%</td>
</tr>
</tbody>
</table>

However a closer review of the data (Figure 2-8) reveals that 75% of those who left the program did so because they moved\(^\text{18}\), and about 9% left in order to enroll in net metering.\(^\text{19}\) Only 15% of the customers who “opted out” of SmartView did so solely due to a true lack of interest in the program they were enrolled in. Within the individual treatment groups the picture is somewhat different. The ACLM

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\(^{17}\) This number includes the 50 PTR group participants that completed the program in 2011, but did not complete the 2012 PTR program.

\(^{18}\) Participants who moved, including those who moved within the area served by the SmartView pilot, necessarily had to leave the program. This is due to the fact that all participants were required to have at least 12 months of usage data at their service address prior to enrollment.

\(^{19}\) The SmartView pilot scope did not include the reprogramming of AMI meters for dual use with net metering.
treatment group had the largest percentage of participants leave the program due to a lack of interest (7 out of 11 participants who left the program). The PTR group had the second highest percentage of attrition due to lack of interest (11 out of 29 participants who left the program).

A comparison of true opt-out (attrition due to lack of interest) rates among pilot groups in the first year of the program shown in Table 2-9 indicates that the Web Portal Only and Control group had the lowest opt-out rates. The IHD and PTR groups had the highest opt-out rates. On an average monthly basis, the attrition rates for those who lost interest in the program for all groups over both years are 0–0.7%, with the first year having slightly higher monthly average attrition rates.

In the initial enrollment survey, customers were asked to rank the treatment options according to their preferences. As shown in Figure 2-9, of the 112 participants who opted out due to “lack of interest” and who indicated treatment group preferences, close to 50% were assigned to their first choice of treatment options.
More than two-thirds were assigned to either their first or second choice. This indicates that misalignment of preferences and actual group designations likely had little to do with program attrition.

Figure 2-9. Treatment Group Ranking for Those Who “Opted Out” due to “Lack of Interest”

![Bar chart showing distribution of choices among groups](chart)

n = 112

2.2.2 Technical Implementation

Under ENO’s normal Fuel Adjustment Clause, the amount of the fuel adjustment is calculated at the end of the month. In order to provide better accuracy in the actual and estimated bill amounts, ENO implemented an experimental rate schedule that billed the fuel portion of the AMI customers’ bills using the adjustment calculated for the previous month.

Five geographically dispersed towers were installed, providing ample coverage, and redundant signal paths for most of the city. Each tower installation also contained a TGB that combined the radio, communications, and data processing functions and served as the backhaul connection point.

During the course of the SmartView pilot, the Meter firmware (software) and IHD firmware updates were installed to improve the HAN connection stability. Additionally, increased diagnostics capabilities were added to the Meter and HAN device to allow review of the HAN connection status, providing insight into why the device was not connected or “synced” on the HAN. The Meter firmware was updated over the air for the majority of the meters. There were some meter swaps necessary to re-provision and connect problem HAN devices to the HAN network. Also, methods were developed to ping the meter to determine which HAN devices were not synced/connected on the HAN. Updated firmware enabled the HAN device to automatically re-sync to the HAN.

Initially, HAN devices were preconfigured and mailed out to participants. Some participants experienced meter synchronization issues with the initial provisioning of the HAN device. Also, the HAN device required multiple buttons to be pressed simultaneously to clear and reset it to ENO’s specifications when it needed to be re-synchronized. Many participants required assistance with this procedure, and calls to customers with un-synced HAN devices or customer service agent visits to participant homes were required in some instances.
There was a subset of HAN devices that required replacement. They were replaced with HAN devices with updated firmware allowing for stable HAN connectivity, diagnostics, and robust device provisioning. Some devices experienced loss of power due to low battery voltage (unplugged), incorrect out of radio range errors, blank displays and backlights, and IHDs still enrolled in the initial configured network not synced with the HAN, which required clearing of the network to disband the existing HAN prior to re-provisioning. There was also an early issue with defective capacitors in the PCTs that was quickly rectified.

2.3 Experimental Design and Evaluation Methods

2.3.1 Event and Energy Impact Analysis

The estimation of the event impacts of all four participant groups requires hourly meter data collected for each participant as well as for appropriately sized control groups that serve as benchmarks for purposes of estimating load impacts.\(^{20}\) The evaluation employed the following control groups (Table 2-10), with each selected to best serve the intended purpose:

<table>
<thead>
<tr>
<th>Control Group</th>
<th>Purpose in Evaluation</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval-metered control sample*</td>
<td>Event impacts</td>
<td>Evaluation requires interval data from non-participants in order to assess time-varying impacts adjusted for weather, economic, and other macro factors.</td>
</tr>
<tr>
<td>Monthly bills from control sample*</td>
<td>Annual and seasonal</td>
<td>Monthly billing data is readily available; interval data is not needed for annual and seasonal energy impacts.</td>
</tr>
</tbody>
</table>

* The evaluation is using a subsample of each control group population to serve as the comparison group, based on matching of energy consumption patterns with the participant group.

The evaluation team first consolidated all of the individual time-series into a single panel (or longitudinal) data set; that is, a data set that is both cross-sectional (including many different individuals) and time-series (repeated observations for each individual). Once the consumption data was cleaned of obvious outliers, erroneous readings, and missing values, the event and energy impacts of all four groups were estimated using regression analysis. Refer to Appendix A. for a detailed description of the data and methodology used in the impact analysis.

Baseline estimation. An advantage of regression analysis relative to straight comparison of a participant group and a control is that it implicitly establishes a baseline from which deviations, such as customer response to a PTR event, may be estimated through the inclusion of dummy indicator variables. As noted above, interval data is available for a control group of customers not participating in the pilot; this data will allow for estimation of a baseline consumption level for each hourly interval (i.e., what consumption would be if the customer were not a participant in the pilot) against which the participant’s true consumption can be compared. The model architecture does this analysis inherently for each hour and each participant, but the analysis can utilize the model to explicitly calculate a baseline consumption level.

\(^{20}\) Meter interval data was collected at 15 minute intervals and was then aggregated to the hourly level for this analysis.
Weather normalization. Additional time-series variables have been included in each regression to control for variations in ambient temperature, weather, and whether a day is a weekend, holiday or weekday. The inclusion of weather and temperature variables implicitly performs weather normalization and precludes the need for explicit adjustments to the data to account for weather impacts. Essentially, the regression controls for weather effects and allows the analyst to forecast the effect that weather changes will have on the variable of interest (i.e., electricity consumption).

2.3.2 Participant Satisfaction and Demographics

The post-pilot survey was the primary research tool used to assess achievement of evaluation objectives, which include the following:

- Identification of the level of customer acceptance and satisfaction with each of the pilot groups overall and the devices, technologies, and provided information
- Impacts of outreach and training efforts on customer satisfaction and acceptance

Customer surveys were administered to all participants who completed the SmartView pilot. ACLM and PTR customers were given a monetary incentive of $25 on completion of the post-pilot survey. IHD and web portal customers were not given an incentive. A unique set of survey questions were developed for each participant group, but, where possible, similar questions were posed to enable comparison between program offerings with similar characteristics and objectives. Table 2-11 presents a summary of major survey topics, covering customer perceptions, preferences, and willingness to participate in a full-scale program.

<table>
<thead>
<tr>
<th>Table 2-11. Major Customer Survey Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Topic Areas</strong></td>
</tr>
<tr>
<td>Participant Expectations</td>
</tr>
<tr>
<td>Program Support and Training</td>
</tr>
<tr>
<td>Views on Technology</td>
</tr>
<tr>
<td>Participant Involvement and Awareness</td>
</tr>
<tr>
<td>Participant Satisfaction/Areas for Improvement</td>
</tr>
<tr>
<td>Impacts (incl. lifestyle and savings impacts, and behavior changes)</td>
</tr>
</tbody>
</table>

Customer feedback is the primary input to the customer satisfaction analysis and has been obtained through surveys of participants after pilot program implementation. Additionally, demographic data collected on participants is an essential component in modeling and interpreting any energy savings impacts attributable to the program.

Enrollment questionnaires were administered at the time of enrollment to collect demographic data relating to household characteristics, education level, Internet usage, and preferred pilot group assignment, among other information.

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21 Control group customers were given a $25 credit if they completed the program. Post-pilot surveys were then administered to control group customers by phone.
3. Results

3.1 Impact Evaluation Results

The purpose of the impact analysis is to quantify changes in energy demand and overall consumption resulting from participation in the pilot program. The pilot program design is intended to affect both the amount of energy consumed and the timing of consumption (for event-based treatments). Based on participant monthly billing data from May 2010 through September 2012 and interval demand data from April 2011 through September 2012, major findings of the impact analysis are shown in Table 3-1 and Table 3-2.

<table>
<thead>
<tr>
<th>Pilot Group</th>
<th>Air Conditioning</th>
<th>Number of Participants Included in Model</th>
<th>Demand Impacts During Event</th>
<th>Bill Savings Per Event ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACLM²²</td>
<td>All</td>
<td>318</td>
<td>-16.3% -0.40 ***</td>
<td>$0.11</td>
</tr>
<tr>
<td>PTR²³</td>
<td>All</td>
<td>375</td>
<td>-10.6% -0.25 ***</td>
<td>$0.41</td>
</tr>
<tr>
<td></td>
<td>Central AC</td>
<td>266</td>
<td>-11.6% -0.29 ***</td>
<td>$0.48</td>
</tr>
<tr>
<td></td>
<td>No Central AC</td>
<td>109</td>
<td>-7.6% -0.13 ***</td>
<td>$0.22</td>
</tr>
</tbody>
</table>

*** - 99% Confidence; ** - 95% Confidence; * - 90% Confidence; No Stars - Less Than 90% Confidence

The remainder of this chapter will discuss the impact analysis findings. Appendix B contains detailed results for each subgroup.

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²² The ACLM impacts are for the summer of 2011 only.
²³ The PTR impacts are an average over the summers of 2011 and 2012.
3.1.1 Event Impacts

ENO called 20 Peak Time rebate events in 2011 and 14 events in 2012. Each event was from 1 p.m. to 5 p.m. Similarly, Entergy New Orleans called 23 Air Conditioning Load Management events in 2011. The Air Conditioning Load Management pilot was only for 2011, so there were no events called during 2012. Table 3-1, Table 3-3, and Table 3-4 contain the event impacts for these pilot groups.

Table 3-3. Impacts Prior to Events

<table>
<thead>
<tr>
<th>Pilot Group</th>
<th>Air Conditioning</th>
<th>Number of Participants Included in Model</th>
<th>Demand Impacts Prior To Event</th>
<th>Demand Impacts Two Hours Prior To Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACLM</td>
<td>All</td>
<td>318</td>
<td>-5.1% -0.13 ***</td>
<td>-6.1% -0.15 ***</td>
</tr>
<tr>
<td>PTR</td>
<td>All</td>
<td>375</td>
<td>-4.3% -0.10 ***</td>
<td>-4.2% -0.10 ***</td>
</tr>
<tr>
<td></td>
<td>Central AC</td>
<td>266</td>
<td>-5.5% -0.14 ***</td>
<td>-5.3% -0.13 ***</td>
</tr>
<tr>
<td></td>
<td>No Central AC</td>
<td>109</td>
<td>0.0% 0.00</td>
<td>-0.3% -0.004</td>
</tr>
</tbody>
</table>

*** - 99% Confidence; ** - 95% Confidence; * - 90% Confidence; No Stars - Less Than 90% Confidence

Table 3-4. Post-Event Impacts

<table>
<thead>
<tr>
<th>Pilot Group</th>
<th>Air Conditioning</th>
<th>Number of Participants Included in Model</th>
<th>Demand Impacts Hour Post Event</th>
<th>Demand Impacts Two Hours Post Event</th>
<th>Demand Impacts Three Hours Post Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACLM</td>
<td>All</td>
<td>318</td>
<td>1.4% 0.03</td>
<td>6.4% 0.16 ***</td>
<td>5.5% 0.14 ***</td>
</tr>
<tr>
<td>PTR</td>
<td>Central AC</td>
<td>266</td>
<td>-6.1% -0.15 ***</td>
<td>-0.8% -0.02</td>
<td>-2.2% 0.06 ***</td>
</tr>
<tr>
<td></td>
<td>No Central AC</td>
<td>109</td>
<td>-3.7% -0.06 **</td>
<td>0.6% 0.01</td>
<td>-2.3% 0.04</td>
</tr>
</tbody>
</table>

*** - 99% Confidence; ** - 95% Confidence; * - 90% Confidence; No Stars - Less Than 90% Confidence

a. Air Conditioning Load Management Event Impacts

ACLM pilot participants were exposed to events during which their central air conditioning units were cycled off 33% of each hour at random. The event periods were from 1-4 p.m. during the summer (June to September) on days when events were called by Entergy New Orleans. This program was intended to reduce demand during peak hours by directly controlling customer’s air conditioning usage.

Table 3-1 provides the average event impact for the Air Conditioning Load Management group. The ACLM pilot participants reduced their demand by an average of 0.4 kW (16.3%) during events. As shown in Table 3-3, during the two hours prior to the beginning of events, participants reduced their demand between 5% and 6%. After the events concluded, as shown in Table 3-4, participants increased their demand by approximately 5%. This increase in usage after an event is commonly referred to as a “snap-back effect.” This snap-back effect mitigates some of the energy savings during the event. Figure 3-1 visually summarizes the pre-event, event, and post-event impacts of ACLM customers relative to their own loads on non-event days along with their matched control group on event and non-event weekdays.
All of the ACLM event impacts shown are significantly different from zero at the 99% confidence level. Similarly, most of the pre-event and post-event impacts are significantly different from zero at the 99% confidence interval, but there are some specific impacts that are only significantly different from zero at the 90% confidence interval. See regression model output in Appendix B for additional details.

b. Peak Time Rebate Event Impacts

Pilot participants in the Peak Time Rebate group were exposed to rebate events, in which customers received a rebate for every kWh reduction in energy during the event period. The event periods were from 1-6 p.m. during the summer (June to September) on days when events were called by Entergy New Orleans. Participants received a rebate of $0.23 per kWh for reductions made during peak time events. This program was intended to encourage participants to reduce energy usage during peak hours.

Table 3-1 provides the average event impact for the Peak Time Rebate group. The PTR pilot participants reduced their demand by an average of 0.25 kW (10.6%) during events. Give the additional year of observations for this participant group; subgroups of PTR participants segmented by the presence of central air conditioning were modeled to identify how central air conditioning affects the response to PTR events. Participants without central air conditioning reduced their demand by 7.6% during events, which is 3% less than the overall participant group, but approximately half of the kW reduction of the participant group due to a smaller load prior to the events. As shown in Table 3-3, during the two hours prior to the beginning of events, participants reduced their demand by approximately 4%. After the events concluded, as shown in Table 3-4, participants only increased their usage during the third hour after events. This delayed increase in usage after an event preserves some of the energy savings achieved during the event. Figure 3-2 visually summarizes the pre-event, event, and post-event impacts of PTR.
customers relative to their own loads on non-event days along with their matched control group on event and non-event weekdays.

**Figure 3-2. Peak Time Rebate Load Shapes – Participants and Matched Control Group**

![Graph showing load shapes](image)

All of the PTR event impacts shown are significantly different from zero at the 99% confidence level. Similarly, most of the pre-event and post-event impacts are significantly different from zero at the 99% confidence interval, but there are some specific impacts that are only significantly different from zero at the 90% confidence interval. Modeling subsets of the PTR participant group created smaller sample sizes and the results were not always significantly different from zero. Larger samples of the subgroups would improve the statistical significance of these results and possibly change the coefficients. See regression model output in Appendix B for additional details.

### 3.1.2 Energy Impacts

A major purpose of the pilot program was to encourage participants to conserve energy through exposure to peak time rebates and/or enabling technologies. Increased information about energy consumption, provided by the in-home display and the web portal, could result in energy conservation. The energy impact analysis described below presents estimated changes in daily energy usage. As shown in Table 3-2, Navigant found that some participants in all four pilot groups reduced their energy usage in the summer season; however, these results were not statistically significantly different from zero at the 90% confidence level for many of those participants.

#### a. Air Conditioning Load Management Energy Impacts

Figure 3-3 displays the average monthly energy for the participants and their matched control group. The energy impacts are not statistically significantly different from zero at the 90% confidence level. The
lack of statistical significance does not mean that there are no energy savings or increases in energy consumption, but it does mean that there is not enough data to support the existence of a change in energy consumption.

**Figure 3-3. Air Conditioning Load Management Monthly Energy**

![Graph showing average daily kWh for Summer Months, Control, and Treatment groups](image)

b. **Peak Time Rebate Energy Impacts**

Figure 3-4 displays the average monthly energy for PTR participants and their matched control group. The energy impacts are not significantly different from zero at the 90% confidence level. The impacts indicate that there may be energy savings for some of the participants, but there is not enough information to conclude that there are statistically significant savings.
c. In-Home Display Energy Impacts

Figure 3-5 displays the average monthly energy for IHD participants and their matched control group. The energy impacts are not statistically significantly different from zero at the 90% confidence level. The lack of statistical significance does not mean that there are no energy savings or increases in energy consumption, but it does mean that there is not enough data to support the existence of a change in energy consumption.
d. Web Portal Energy Impacts

Figure 3-6 displays the average monthly energy for Web Portal participants and their matched control group. The energy impacts are not significantly different from zero at the 90% confidence level for the group. The impacts indicate that there may be energy savings for some of the participants, but there is not enough information to conclude that there are statistically significant savings.
3.1.3 Customer Education Impacts

In addition to the standard communications with participants, some customers received face-to-face training for the equipment they received as part of the program. The impact of this additional interaction with the participant has been included in the energy models and was significantly different than zero at a 90% confidence interval for the ACLM participant group and significantly different than zero at a 99% confidence interval for the IHD participant group. As shown in Table 3-2 above, participants that received face-to-face training in the ACLM or IHD participant groups saved approximately 7% of their average daily energy usage. These savings differ from the overall population of these pilot groups in that they are negative and significantly different from zero. These savings are likely due to those customers being more engaged in the pilot program and having a better understanding of how to use the equipment they were provided.

3.2 Participant Characteristics

This section contains information about customer demographic and dwelling characteristics obtained from the enrollment survey.

3.2.1 Family Size and Income Distribution

Figure 3-7 shows the distribution of household size across SmartView program participants. Approximately 65% of participants have one or two member households.
Participant household income levels are provided in Table 3-5 and Table 3-6. The majority of participants (88%) earn $33,520 or less, which is the HUD definition of “low income” for a single-family household. Overall, the SmartView pilot participants are on the upper end of the low-income population, with roughly 70% of all participants defined as “low income,” 24% defined as “very low income,” and only 7% falling into the extremely low-income category.

Table 3-5. Household Income

<table>
<thead>
<tr>
<th>Total Household Income</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>$33,520 or less</td>
<td>87.8%</td>
</tr>
<tr>
<td>$38,240 or less</td>
<td>7.0%</td>
</tr>
<tr>
<td>$43,040 or less</td>
<td>3.0%</td>
</tr>
<tr>
<td>$47,840 or less</td>
<td>1.4%</td>
</tr>
<tr>
<td>$51,680 or less</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>$55,520 or less</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>$59,360 or less</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>$63,120 or less</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>$66,960 or less</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>

Table 3-6. Participant Allocation by HUD Income Levels

<table>
<thead>
<tr>
<th>HUD Income Level Bucket</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Income</td>
<td>69%</td>
</tr>
<tr>
<td>Very Low Income</td>
<td>24%</td>
</tr>
<tr>
<td>Extremely Low Income</td>
<td>7%</td>
</tr>
</tbody>
</table>
3.2.2 Housing Types

SmartView pilot participant residence types included single family homes, duplex/tri-plex/four-plex homes, condos and apartment buildings, and mobile homes. As shown in Figure 3-8, final allocations of housing types varied significantly across treatment groups. Since housing type is a very important factor in understanding usage patterns of participants, and because of the variation in housing type distributions between treatment groups and the overall control pool, housing type was used in the creation of control subsets for each treatment group (along with historical average monthly usage).

![Figure 3-8. Participant allocation by HUD Income Levels](image)

3.2.3 Education and Other Participant Characteristics

Figure 3-9 shows the distribution of pilot participants by education level. Thirty-seven percent of SmartView pilot participants had at least some college. High school/GED was the highest level of education for close to half the participants.

![Figure 3-9. Participant Education Level](image)
Table 3-7 contains additional customer and dwelling characteristics. Many of these variables were used directly in the impact models. For example, some of the regression models required a flag for the presence of central air conditioning to correctly specify the model.

Table 3-7. Other Participant Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>% of respondents (or mean, where applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own or buying the residence</td>
<td>59%</td>
</tr>
<tr>
<td>Have natural gas service</td>
<td>66%</td>
</tr>
<tr>
<td>Central air</td>
<td>76%</td>
</tr>
<tr>
<td>AC window units</td>
<td>21%</td>
</tr>
<tr>
<td>Mean number of adults 18 years of age or older live in the home.</td>
<td>1.65</td>
</tr>
<tr>
<td>Mean number of adults are over 65 years of age.</td>
<td>0.54</td>
</tr>
<tr>
<td>Mean number of children under the age of 18 live in the home.</td>
<td>0.41</td>
</tr>
<tr>
<td>Someone is home Monday–Friday sometime between 1 p.m. and 5 p.m. at least one day per week.</td>
<td>90%</td>
</tr>
<tr>
<td>Mean number of people in your household work full time.</td>
<td>0.48</td>
</tr>
<tr>
<td>Someone in household works from home at least one day per week.</td>
<td>89%</td>
</tr>
<tr>
<td>Has electric clothes dryer</td>
<td>56%</td>
</tr>
<tr>
<td>Has programmable thermostat (excl. ACLM group)</td>
<td>44%</td>
</tr>
<tr>
<td>PCT is set to automatically change temperatures during the day when no one is home (incl. ACLM).</td>
<td>58%*</td>
</tr>
<tr>
<td>Mean number of degrees PCT is set back (incl. ACLM)</td>
<td>3.94</td>
</tr>
</tbody>
</table>

*58% overall, or 94% of those who have PCTs

3.3 Post-Pilot Survey Results

Post-pilot survey instruments were administered via mail to participants who completed the SmartView pilot program. For the ACLM and PTR treatment groups, ENO mailed surveys to participants who were active as of September 30, 2011. IHD, Web Portal, and Control group customers who were active as of September 30, 2012 were given surveys. For the purposes of the process evaluation contained herein, Control Group post-pilot survey responses are not analyzed. However, as seen in the Impact Results discussion, select survey questions which were answered by the control group (in addition to treatment group participants) were incorporated into impact models.

ENO developed unique survey instruments for each treatment group and the Control group. Where it was possible, similar questions were posed in the surveys in order to enable comparison between

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24 Control group participants were surveyed by phone.

25 Since the PTR survey was sent out to participants after the first year, results do not reflect the experiences of the second round of PTR pilot in the summer of 2012.
treatment groups. As evident in Table 3-8, ENO received an excellent response rate to surveys by ACLM, PTR, and Control group participants. This is likely due to the fact that ENO incentivized survey completion by these participants by offering a $25 bill credit.

<table>
<thead>
<tr>
<th>Survey Effort</th>
<th>Total Number of Completes</th>
<th>IHD</th>
<th>Web Portal</th>
<th>PTR (2011)</th>
<th>ACLM</th>
<th>Control Pool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-pilot surveys mailed to program &quot;completes&quot;</td>
<td>3,975</td>
<td>2,135</td>
<td>319</td>
<td>371</td>
<td>340</td>
<td>810</td>
</tr>
<tr>
<td>Post-pilot surveys completed</td>
<td>2,177</td>
<td>896</td>
<td>96</td>
<td>269</td>
<td>252</td>
<td>664</td>
</tr>
<tr>
<td>Response rate</td>
<td>55%</td>
<td>42%</td>
<td>30%</td>
<td>73%</td>
<td>74%</td>
<td>82%</td>
</tr>
</tbody>
</table>

The IHD and Web Portal groups, which were not offered a similar monetary incentive, had lower response rates. Detailed results and observations from the post pilot survey are included in Appendix E. Key observations from the post-pilot survey are described in the following sections.

3.3.1 Participant Expectations

The primary reasons why customers participated in the SmartView pilot are provided in Figure 3-10. An overall 93% of treatment group participants cited “Saving Money” as the primary motivation for becoming involved in the SmartView pilot. Other responses included such reasons as curiosity and the desire to be able to monitor energy use and to better understand billing.

3.3.2 Views on Training and Support

As shown in Figure 3-11, approximately 90% of all treatment group participants found the training materials provided by ENO either “Very Easy” or “Somewhat Easy” to understand. Nearly 50% of the
PTR, IHD, and Portal groups found the information “Very Easy.” An open-response opportunity in the surveys revealed that elderly participants appeared to have the most difficulty understanding program information.

**Figure 3-11. How easy was it to understand the SmartView program information?**

In addition to training materials, participants were asked about the helpfulness of SmartView pilot customer support representatives. As shown in Figure 3-12, almost all respondents—99%—felt that customer service representatives were “Very Helpful” or “Somewhat Helpful,” with the majority of every treatment group responding “Very Helpful.”
3.3.3 Views on Technology

3.3.3.1 Programmable Communicating Thermostat

ACLM participants were asked to comment on how easy it was to use and understand their PCT. Nearly 90% reported that it was either “Very Easy” or “Somewhat Easy” to understand the information displayed on their PCT (Figure 3-13). Anecdotally, some participants stated that the device was hard to use initially, but that, with practice, use of the device became easier. Still others commented that they could have used more training on the device.

ACLM participants should have received some form of in-person instruction on how to use the PCT prior to the start of the pilot. Twenty-two percent of ACLM participants elected to attend face-to-face training sessions which featured a technology demonstration. A crosstab of whether a participant received “high touch” training versus ease of using the PCT does not suggest that those who attended face-to-face training sessions were better able to understand the information provided on the PCT. Regardless of what type of training ACLM participants received prior to the installation of their PCT, PCT installers were supposed to instruct participants on how to operate PCTs at time of installation.
3.3.3.2 In-Home Displays

PTR and IHD participants responded similarly when asked about the ease of using the IHD technology. Approximately 90% of both groups thought that the IHD was either “Very Easy” or “Somewhat Easy” to use (Figure 3-14 and Figure 3-15). Departing from the ACLM group’s response to the PCT technology, a larger portion (approximately half) of both the PTR and IHD groups found the IHD “Very Easy” to understand.

Only 18% and 13% of participants in the PTR and IHD groups, respectively, attended face-to-face training in which they received a demonstration of the functionality of the IHD.26 A crosstab of whether a participant received “high touch” training versus ease of understanding the IHD reveals that a slightly higher percentage of those who received face-to-face training than those who did not found the information on the IHD “Very Easy” to understand.

Some PTR and IHD participants commented that they had problems with the IHD malfunctioning, especially following power outages. Additionally, some others cited fears that usage numbers on the IHD were inconsistent with actual usage, usage numbers reported on the web portal or numbers reported on monthly bills.

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26 Most PTR and IHD participants were mailed the IHD after the face-to-face training (or after training materials were received in some form).
3.3.3.3 Web Portal

Approximately 80% of Portal Only participants reported that information on the web portal was either “Very Easy” or “Somewhat Easy” to understand (Figure 3-16).
Such a small number of Portal Only participants attended face-to-face training that it is not statistically sound to analyze the relationship between “high touch” training and ease with which Portal participants understood the web portal.

Figure 3-16. Portal Only group: How easy was it to understand the information on the Portal?

Approximately 80 to 85% of ACLM, PTR, and Portal Only participants thought that the information provided on the web portal was useful (Figure 3-17). This percentage was significantly less for the IHD group (56%). This may be because, in the absence of additional program features (like the ACLM and PTR groups); IHD participants may have been particularly attuned to the similarities in the type of information provided by the IHD and web portal. (See Appendix C. to see the similarities in information provided by the different program technologies.)
3.3.4 Participant Involvement and Awareness

ACLM participants were relatively involved, with roughly 84% checking the smart thermostat at least “Once or Twice Monthly” (Figure 3-18). However, ACLM were not very aware of program events; no participant was aware of all 23 event days and 32% reported that there had been 0 event days.

Eighty-five percent of ACLM participants reported that they were never forced to override the A/C system during events, and 95% never had to override more than twice in a month.

Figure 3-18. ACLM: How often did you check your smart thermostat to see your energy usage?
PTR customers utilized the IHD with more frequency than IHD participants, with 66% of PTR participants reporting that they used the device at least once daily (versus 44% of the IHD group). Overall, 96% and 94% percent of PTR and IHD participants, respectively, checked usage via IHD at least once or twice monthly (Figure 3-19 and Figure 3-20).

**Figure 3-19. PTR: How often did you check your IHD to see your energy usage?**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than once a day</td>
<td>42%</td>
</tr>
<tr>
<td>Once a day</td>
<td>26%</td>
</tr>
<tr>
<td>Once or twice weekly</td>
<td>21%</td>
</tr>
<tr>
<td>Once or twice monthly</td>
<td>8%</td>
</tr>
<tr>
<td>Not at all</td>
<td>1%</td>
</tr>
<tr>
<td>Other</td>
<td>2%</td>
</tr>
<tr>
<td>Other - several times a day</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Other - 5 times weekly</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Other - it didn’t work</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>

n = 266, of 269 completed PTR surveys
Roughly 50% of PTR participants were aware of ten or more events. This is somewhat inconsistent with the fact that most PTR participants (88%) felt that events were communicated effectively. Lack of awareness of events is particularly detrimental for a PTR program because of the fact that such a program requires participants to “opt in” by actively choosing to conserve energy during events, in order to maximize the rebate earned.

Additionally, most PTR participants (79%) were unaware that the rebate was twice the cost of a kWh.

In terms of the web portal, 40% of Portal Only participants reported that they never used the web portal. However, encouragingly, close to 60% used the portal at least once or twice monthly (Figure 3-21).
Since Internet access was a requirement of Portal Only participants, the lack of web portal usage by 40% of Portal Only participants cannot be attributed to lack of access. However, at the start of the pilot, ENO did not have a phone-based application for its web portal, which begs the question of whether the subset of Portal Only participants who never used the portal also typically accesses the internet via their smartphones. Since only 14% of those who did not use the portal use their phones to access the Internet, this does not fully explain Portal Only participants’ lack of involvement (Figure 3-22). Another possible explanation is the fact that Portal Only participants had an extremely low rate of participation in face-to-face training before the start of the program (4%).
Internet access was not a requirement for the non-Portal Only groups. Thus, portal usage results for these groups must first be filtered for only those who have Internet access. This leaves a subset of 556 participants who responded to the question about web portal usage. Still, the majority of ACLM, PTR, and IHD respondents did not use the web portal (Figure 3-23).

Figure 3-23. ACLM, PTR, and IHD: How many times did you access your energy usage information via the Internet portal?

n = 556, of 1,612 ACLM, PTR, IHD participants who had access to the Internet
3.3.5 Participant Satisfaction and Areas for Improvement

The majority of all treatment groups cited "Money Savings" as the top benefit of participation (Figure 3-24). As IHD and Portal participants did not receive any monetary incentives to conserve energy, any money savings on the part of IHD and Portal Only participants purely reflects self-motivated changes in usage habits.

Participants commented that the program empowered and enabled them to control and monitor their own usage. Participants also cited the helpfulness of customer service representatives.

![Figure 3-24. What have you liked MOST about participating in the SmartView program thus far?](image)

Only about half (781) of those who completed surveys responded to the question of what they liked least about the program. Of those who responded, approximately one quarter of all participants were disappointed with the money savings from the program (Figure 3-25). Roughly one third of ACLM and PTR participants reported that the component of the pilot they liked least was the pilot technologies (Smart Grid Technology Test). Other responses included equipment malfunction and the need for more instruction at the start of the program. See Appendix for complete list of verbatim responses to this question.

Interesting comments relating to improvement of the SmartView pilot include:

- Difficulty in "reaping" the PTR reward if you are generally a conservative energy user
- Participants did not always receive instruction for using PCT at time of installation

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27 Smart Grid Technology Test refers to the Smart Grid technologies provided to program participants (i.e. AMI meter, PCT, IHD, web portal).
- Difficulty of elderly in understanding training materials and technology
- Desire to have device monitor gas usage as well as electricity

Figure 3-25. What have you liked LEAST about participating in the SmartView program thus far?

When asked if they would like the program to continue, the majority of PTR, IHD, and Portal Only participants responded that they would be interested in having the program continue into the future (Figure 3-26). Additionally, in the comments section of the survey, many participants commented that they really liked the program and that they hoped it would continue or that there would be future opportunities to participate in similar programs.
3.3.6 Impacts

In terms of lifestyle impacts of the SmartView pilot, roughly 50-60% of all treatment group participants reported their homes were “More Comfortable” as a result of the program (Figure 3-27). The PTR group had the largest percentage of participants reporting that they were “Less Comfortable” (24%). Specifically, some PTR participants thought that instances of consecutive events days were challenging and that the five-hour window on event days was too long.

*A business decision was made to exclude this question in the ACLM survey.

n = 1,023, of 1,261 completed surveys for these groups
Figure 3-27. How do you feel the comfort level of your home was affected?

<table>
<thead>
<tr>
<th>Percent of Respondents per Pilot Group</th>
<th>A/C Load Management</th>
<th>Peak Time Rebate</th>
<th>IHD</th>
<th>Portal Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>More Comfortable</td>
<td>60%</td>
<td>47%</td>
<td>59%</td>
<td>51%</td>
</tr>
<tr>
<td>No Difference</td>
<td>22%</td>
<td>28%</td>
<td>32%</td>
<td>43%</td>
</tr>
<tr>
<td>Less Comfortable</td>
<td>18%</td>
<td>24%</td>
<td>10%</td>
<td>6%</td>
</tr>
</tbody>
</table>

n = 1,423, of 1,513 completed surveys for these groups

Relating to perceived bill impacts, 80% to 90% of participants believe they saved money as a result of the program (Figure 3-28). The figure compares customers’ perceived bill impacts\(^{28}\) to actual, non-weather-normalized, savings.\(^{29}\) Since customer perception typically does not consider the effects of weather and other factors on usage from one year to the next, it would be expected that the savings a customer perceives would match more closely with savings calculated from actual usage data than with weather adjusted usage data. This is confirmed by the figure below, which shows a consistent gap of approximately 20% between perceived and actual savings across each treatment group.

\(^{28}\) From Post-Pilot Survey data (n = 1,440, of 1,513 completed surveys for these groups).

\(^{29}\) Actual savings is calculated using monthly billing data, not adjusted for weather, from 2010 - 2012. The average daily usage for each month in 2011 and 2012 is compared to the corresponding month during 2010. A customer is considered to have savings if their average daily usage during the pilot (2011 and 2012) is less than 2010. This captures the actual changes in customer’s bills, but it does not account for the effects of varying weather conditions between years.
Ninety-two percent of all participants reported that checking energy usage helped them to at least somewhat better manage their budget (Figure 3-29). The PTR group had the highest percentage of participants who felt the program was “Very Helpful” in managing their budget (over half).

Overwhelmingly, almost all participants said that they would continue to practice energy-saving techniques (Figure 3-30).
3.4 Feedback from Additional Stakeholders

In addition to SmartView pilot participants, key stakeholders with vested interest in the pilot included the New Orleans City Council, Entergy New Orleans, Inc., and partnership nonprofit organizations (Community Partners). ENO solicited the feedback of Community Partners regarding the program, and found overwhelming support for the effort. The following comments are indicative of Community Partners’ views:

“We are always excited to bring new energy efficient opportunities to the neighborhoods and communities we serve. We have established relationships with over 20,000 households throughout New Orleans. SmartView provided tools to further engage residents with their energy usage. We were happy to bring this opportunity to hundreds of our program participants, which allowed us to reconnect and provide an additional energy efficient resource.”

- Andreas Hoffmann, Executive Director/Founder, Green Light New Orleans

“We enjoyed the program because it gave NDF an opportunity to reach back to a group of our trained clients/homeowners and reinforce NDF’s ability to offer continuous services in the post purchase area.”

- Fred Johnson, NDF (Neighborhood Development Foundation)
4. Conclusions and Recommendations

The objective of this evaluation pilot was to test low-income customer response to ENO’s SmartView pilot programs enabled by the company’s AMI technology and infrastructure. Specifically, Navigant’s research focused on both quantitative and qualitative assessments – and how ENO’s customer education and training activities – influenced the following measures:

- Impacts on average hourly peak demand and peak load shifting
- Impacts on average monthly consumption
- Customer satisfaction with and acceptance of the pilot

To provide context to the impact results and customer experience analysis, Navigant compared the ENO SmartView pilot program to similar pilot programs at peer utilities. Table 4-1 contains the descriptions of the programs that are used in this comparison.

<table>
<thead>
<tr>
<th>Utility A</th>
<th>Pilot included 8 treatment groups:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- 2 different rate plans (TOU and VPP) with all combinations of three enabling technologies (PCT, IHD, Web Portal, and all three)</td>
</tr>
<tr>
<td>Utility B</td>
<td>Pilot included 4 treatment groups:</td>
</tr>
<tr>
<td></td>
<td>- Enhanced information only (both IHD and Web Portal)</td>
</tr>
<tr>
<td></td>
<td>- PTR with DLC (and enhanced information)</td>
</tr>
<tr>
<td></td>
<td>- TOU with CPP and DLC (and enhanced information)</td>
</tr>
<tr>
<td></td>
<td>- TOU with CPP (and enhanced information)</td>
</tr>
<tr>
<td>Utility C</td>
<td>Pilot included 3 treatment groups:</td>
</tr>
<tr>
<td></td>
<td>- Opt-Out group with CPP rate</td>
</tr>
<tr>
<td></td>
<td>- Opt-In group with CPP rate (given recruitment and completion credits)</td>
</tr>
<tr>
<td></td>
<td>- Technology Only group</td>
</tr>
<tr>
<td></td>
<td>*All groups received peak notification.</td>
</tr>
<tr>
<td>Utility D</td>
<td>Pilot included 1 treatment group:</td>
</tr>
<tr>
<td></td>
<td>- CPP rate and access to a Web Portal</td>
</tr>
<tr>
<td>Utility E</td>
<td>Pilot included 2 treatment groups combined with 2 program options:</td>
</tr>
<tr>
<td></td>
<td>- group that received real-time electricity use and cost data at the whole-house level</td>
</tr>
<tr>
<td></td>
<td>- group that received real-time electricity use and cost data for the home, air conditioning (AC) and two additional appliances</td>
</tr>
<tr>
<td></td>
<td>- TOU/CPP program</td>
</tr>
<tr>
<td></td>
<td>- AC load control program</td>
</tr>
<tr>
<td>Utility F</td>
<td>Pilot included 8 treatment groups:</td>
</tr>
<tr>
<td></td>
<td>- 4 pricing options (Dynamic Peak Pricing, TOU/CPP, Low PTR, and High PTR)</td>
</tr>
<tr>
<td></td>
<td>- 2 technology options (AC direct load control, Energy Orb)</td>
</tr>
<tr>
<td>Utility G</td>
<td>Pilot included 2 treatment groups:</td>
</tr>
</tbody>
</table>
- TOU/CPP rate for all participants
- 2 technology/education options (Programmable Thermostat, energy savings education)

Utility H
Pilot included 2 treatment groups:
- 1 pricing option (PTR)
- 2 customer education treatments (Financial benefits, Environmental benefits)

Utility I
Pilot included 1 treatment groups:
- 1 pricing option
- No enabling technology

4.1 ENO SmartView Load Impacts

ENO’s SmartView technology/communications/tower-based system operated at a 99.5% read success rate, providing great interval data for analysis relative to other Smart Grid pilots. Navigant believes this contributed to finding statistically significant impacts in two ways: (1) fewer missing reads and therefore fewer interpolated or estimated values, which may dilute impacts, and (2) fewer customer equipment malfunctions should, all other things equal, lead to a better customer experience and actions consistent with the pilot programs’ objectives.

As shown in Table 4-2, the SmartView peak demand treatment groups (ACLM and PTR) achieved 11–16% peak event load reduction, as good or better than comparable pilots at other utilities. The average demand impact of an air conditioning direct load control program is highly sensitive to the administered duty cycle. In the case of Entergy, a 66% duty cycle was used and each air conditioning unit was turned off for 20 minutes each hour at random. In Table 4-2, Utility F administered a 50% duty cycle. That duty cycle turns off each air conditioning unit for 30 minutes each hour at random. The additional time cycled off will increase the impacts, so those differences should be noted. For PTR, the Entergy impacts are greater than two recently completed studies from large IOUs in the western United States. More surprisingly, ENO’s PTR demand savings are on par with the average savings across several TOU/CPP pilots.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DLC/ACLM</td>
<td>16%</td>
<td>11 - 30%</td>
<td>-</td>
<td>-</td>
<td>18 - 28%¹</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>TOU/CPP</td>
<td>-</td>
<td>2 - 9%</td>
<td>13%</td>
<td>6-13%</td>
<td>-</td>
<td>17%</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>PTR</td>
<td>11%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4.50%</td>
<td>7%</td>
<td></td>
</tr>
</tbody>
</table>

¹ A 50% duty cycle was used in that program instead of a 66% duty cycle used by ENO.

Table 4-3 illustrates that the energy savings from these programs are consistent with, or greater than, results from similar studies. For DLC programs, the technology is commonly a switch on the air conditioning compressor, so there is nothing to enable the customer to achieve energy savings. The use

³⁰ The impact report for Utility G noted that they believed that impacts of approximately 10% would have been normal for a PTR program without load control technology.
of a programmable controllable thermostat as the load control switch, when coupled with face-to-face training to heighten customer engagement, allowed for Entergy customers to achieve significant energy savings while participating in a DLC program. For information-related pilot treatments, Entergy’s energy savings are on par with that of similar pilot programs.

**Table 4-3. Energy Savings Comparison**

<table>
<thead>
<tr>
<th>Energy Savings</th>
<th>Entergy New Orleans</th>
<th>Utility B</th>
<th>Utility E</th>
<th>Utility F</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLC/ACLM</td>
<td>0 - 6.4%</td>
<td>-1%</td>
<td>-</td>
<td>-1.2 - 0.6%</td>
</tr>
<tr>
<td>IHD</td>
<td>0 - 7.7%</td>
<td>1%</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>Web Portal</td>
<td>1.8%</td>
<td>1%</td>
<td>4%</td>
<td></td>
</tr>
</tbody>
</table>

1 None of these results are statistically significant due to sample size limitations.

### 4.2 ENO SmartView Customer Experience

This evaluation also showed that ENO achieved some of the highest rates of customer satisfaction among DOE-funded Smart Grid Pilots. Approximately 92% of SmartView participants would be interested in participating in the program on a permanent basis.31 Comparatively, customer satisfaction results for select other programs are listed below:

- 57% of Utility A’s Smart Grid pilot participants said they were “very likely” to continue the program (and 24% reported they were “somewhat likely” to continue).
- Only 74% of Utility B’s pilot participants reported they were having a “very” or “somewhat” positive experience in the program so far.
- 38% of Utility C’s participants were very satisfied with the program overall (with the remaining reporting that they were somewhat satisfied). 90% of Utility C’s participants would consider continuing in the program.
- 86% percent of Utility D’s pilot participants reported that they had at least a “somewhat” positive experience with the program.

Additionally, regarding participant perception of the usefulness of technologies in managing energy consumption, SmartView compares favorably relative to other programs, especially in the IHD category (Table 4-1).

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31 This is for PTR, IHD, and Web Portal participants. ACLM participants were not asked if they would like to continue participation.
Finally, SmartView web portal usage results are not surprising. In fact, SmartView fared favorably relative to other Smart Grid pilots (Table 4-2).

| Table 4-1. Usefulness of Technologies in Making Consumption Decisions/Changes (% of respondents) |
|---------------------------------------------------------------|-----------------|-----------------|----------------|
|                                                                                   | PCT            | IHD             | Web Portal     |
| ENO SmartView*                                                                  | 40% "very"     | 53% "very"      | 33% "very"     |
|                                                                                 | 50% "somewhat" | 41% "somewhat"  | 49% "somewhat" |
|                                                                                 | 12% "not at all" | 6% "not at all" | 18% "not at all" |
| Utility A                                                                    | 58% "very"     | 41% "very"      | 30% "very"     |
|                                                                                 | 38% "neutral"  | 45% "neutral"   | 59% "neutral"  |
|                                                                                 | 4% "not at all" | 13% "not at all" | 11% "not at all" |
| Utility B**                                                                   | 37% "very"     | 36% "somewhat"  | 27% "not helpful at all" |

*This represents the survey question, “Did checking your energy usage cause you to make changes to lower your bill?”
**These participants also had access to a Web Portal.

4.3 Recommendations

Despite the tremendous success of the ENO SmartView pilot in terms of meeting its stated objectives, and in demonstrating that Smart Grid benefits can and will accrue to low-income population segments, it would be premature to roll out full-scale programs across New Orleans’ low-income population, non-low-income population, or other Entergy service area low-income/non-low-income populations. Additional research and analysis is needed to support additional Smart Grid investment decisions, and associated regulatory and stakeholder oversight processes. In particular, Navigant recommends that ENO conduct the following activities to determine the potential value of additional Smart Grid investments: forecasts of future program participation, updates of Smart Grid technology, program performance and costs in this rapidly changing marketplace, and additional energy and non-energy benefits analysis. All of these are critical inputs into cost-benefit analyses necessary to support future investment decisions.

4.3.1 Forecasts of Future Program Participation

ENO enrolled approximately 10% of eligible customers in the SmartView pilot. Although this was an above average outcome, additional research is necessary to understand whether (a) additional penetration is possible within New Orleans’ low-income community with different offerings, (b) whether the low-income results can be extrapolated to low-income customers outside of New Orleans, and (c) whether the results can be applied to Entergy non-low income customers in and outside of the city.
To do this, and forecast potential participation in future programs, it is important to understand the drivers of participation under alternative program designs that Entergy may consider. This research should include reviews of other Smart Grid pilots across the country, and if necessary, surveys of customers in ENO and other Entergy service areas.

4.3.2 Technology/Program Performance and Cost Review

Federal, state, and local government funding of utility Smart Grid pilots has been accompanied by private-sector investment and a rapidly changing technology landscape. Some early technology companies/divisions are no longer operating, while others have started since the ENO pilot. Smart phone applications can now enhance the PCT, IHD, and web portal customer experience, and the technological improvements in PCT and IHD technologies rival that of smartphones. The costs of these and related technologies have changed considerably since the SmartView pilot, and Navigant therefore recommends that ENO conduct a thorough review of the current state of the Smart Grid technology market prior to conducting cost-benefit analyses and making additional technology purchases or investments.

Similarly, Smart Grid programs are continuing to evolve. ENO has great experience now with ACLM and PTR programs, but has not investigated time-of-use/critical peak pricing (TOU/CPP) options. A thorough review of the effectiveness of these and other program variants is vital to (1) fully understanding the potential for wider program expansion, and (2) offering a greater menu of choices to customers, which is at the heart of long-run Smart Grid program success.

4.3.3 Additional Energy and Non-Energy Benefit Analysis

Although this evaluation has found statistically significant peak demand and energy savings, certain components necessary to perform cost-benefit analyses were beyond the scope of this effort. In particular, the research did not address the lifetime of savings. Will they degrade or increase over time? Will additional, sustained customer outreach efforts by ENO and its partners be necessary to maintain savings levels? How long will technologies and associated savings persist? Again, secondary research and analysis focusing on other Smart Grid evaluations can shed light on these issues, and provide the input parameters necessary to perform detailed cost-benefit analysis.

Similarly, additional research into non-energy benefits would assist in assessing the full range of benefits potentially accruing to low-income customers. Preliminary analysis of customer bill delinquencies indicates a potential for positive program impacts on the rate of arrears and disconnects for low-income customers, but more rigorous analysis into the effect of the SmartView technologies on payment delinquencies is necessary to fully monetize these non-energy benefits. Additionally, with interest rates projected to rise, it is likely that arrearage carrying charges that are passed on to ENO customers might be reduced through Smart Grid programs. Other non-energy benefits that may be considered include, but are not limited to, remote service connect/disconnect under glass, immediate connection for a last-minute move-in, outage management, and better distribution system forecasting, particularly for transformer and circuit peak demands. This research could be in the form of additional analysis of ENO billing data, or secondary research into other DSM programs targeting low-income customers.

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32 According to Navigant Research, costs for smart meters, PCTs, and IHDs have been declining by 1 to 5% per year, and are expected to continue to decline by 1 to 9% annually over the next several years. From Navigant Research reports for Smart Meters, Smart Thermostats and Home Energy Management, www.NavigantResearch.com.
4.3.4 Cost-Benefit Analyses

All of the recommendations discussed above relate to the inputs necessary to cover cost-benefit analysis of future Smart Grid investments and programs. The same could also be said of the SmartView pilot. It is common in the DSM and DR industry to perform cost-effectiveness calculations for program initiatives and program portfolios, under a variety of perspectives that are consistent with integrated resource planning (IRP) processes:

- Total Resource Cost Test (TRC)
- Utility/Program Administrator Cost Test (PAC)
- Ratepayer Impact Measure Test (RIM)
- Participant Test (PART)
- Societal Cost Test (SCT)

All of these tests are important for understanding the economics of the SmartView pilot and whether it is prudent to expand Smart Grid efforts. Smart Grid cost-effectiveness analysis is complicated by the infrastructure investment involved, and the allocation of that investment to particular programs and initiatives. In addition to just understanding whether SmartView was “cost-effective” under the various perspectives, a full analysis of the efforts would be accompanied by the development of an agreed-upon analysis framework/tool that would facilitate the analysis of new Smart Grid investments and programs.
Appendix A. Impact Analysis Data Requirements and Methodology

A.1 Event Impact Analysis

Data Inputs

The event impact analysis required hourly impact data for all pilot participants. Navigant received 15-minute interval readings of cumulative kWh, which were then aggregated to obtain the average kW during a one-hour period. The control group was selected from a pool of 979 customers that had interval metering installed and did not receive any treatment (refer to Table 3-1). Navigant combined the hourly usage data with hourly weather data acquired from the National Oceanic and Atmospheric Administration (NOAA).\(^{33}\) Entergy New Orleans also provided a list of event dates and times along with demographic information collected in surveys.

Methodology

The first step of the event impact analysis was to select matched controls from the 979 control group customers. Navigant matched participants to control group customers with the same housing type\(^ {34}\) by comparing monthly bills during the 12 months prior to pilot enrollment. The process consisted of two steps:

1. For each participant – filter for control customers with the same housing type, and calculate the sum of squared differences between the participant’s bills and each control customer’s bills during the 12 months prior to enrollment in the program.

2. Select the control group customer with the minimum sum of squared differences for each participant. This is the matched control for that participant. Note that a given control group customer may be selected as the matched control for multiple participants.

This matching process ensures that, on average, participants and matched controls have similar usage patterns and consumption levels prior to the pilot period, implying that any difference in usage patterns or consumption during the pilot period is a result of the pilot.

Once the matched controls were selected, Navigant estimated a fixed effects regression model using hourly load data for participants and their matched control groups. At a high level, Navigant estimated the impacts of load control and peak time rebate events by comparing hourly load on event days to hourly load on event days for the matched control group and hourly load on non-event days for both participants and the matched control group. Note that this model isolates the event impacts; these impacts may be considered incremental to any variation in load resulting in changes in weather or calendar-related effects. The regression predicts hourly load as a function of the hour of the day, temperature humidity index (THI), cooling degree hours (CDHs), a participant binary variable, a

\(^{33}\) Navigant used hourly weather data from the NOAA weather station at the Louis Armstrong New Orleans International Airport.

\(^{34}\) Housing types were provided in demographic data provided to Navigant by Entergy New Orleans. Housing types included the following: Single Family Homes, Duplexes, Apartments, Mobile Homes, and Other. Housing type was not part of the experimental design of the program, so not all housing types were represented in each treatment group.
weekend binary variable, and a series of event-related variables. The event-related variables include binary variables for event hours (hours 13 through 15 for ACLM and hours 13 through 17 for PTR), binary variables for pre-event impacts (hours 11 and 12), and a series of binary snapback variables (hours 16 through 18 for ACLM and hours 18 through 20 for PTR). The regression models were estimated separately for each of the treatment groups and whether the customers had central air conditioning or not. Formally, Navigant estimated the following model for the ACLM event impacts:

\[ kW_{it} = \alpha_i + \beta \cdot CDH_{it} + \gamma \cdot THI_{it} + \delta \cdot Participant_{it} + \eta \cdot Weekend + \sum_{j=1}^{22} \theta_j \cdot Hour_{jt} \]

\[ + \sum_{j=11}^{12} \lambda_j \cdot PreEvent_{ij} + \rho_i \cdot Event_{i} + \sum_{j=16}^{18} \omega_j \cdot Snapback_{ij} + \varepsilon_{it} \]

where \( \beta, \gamma, \delta, \eta, \theta, \lambda, \rho, \omega \) are parameters to be estimated by the model and:

\( i \) = Index for customers
\( t \) = Index for hourly time intervals
\( kW \) = Average Hourly kW
\( CDH \) = Cooling Degree Hours
\( THI \) = Temperature Humidity Index
\( PreEvent \) = Binary variable for pre-event hour \( j \) (set of two variables), the two hours prior to an event
\( Event \) = Binary variable for event hours
\( Snapback \) = Binary variable for snapback hour \( j \) (set of three variables), the three hours following an event
\( \alpha_i \) = The customer-specific constant term (“fixed effect”)
\( \varepsilon_{it} \) = The cluster-robust error term

The event impacts are determined by the parameter estimates for the Event binary variable (\( \rho \)). Similarly, Navigant estimated the following model for the PTR event impacts:

\[ kW_{it} = \alpha_i + \beta \cdot CDH_{it} + \gamma \cdot THI_{it} + \delta \cdot Participant_{it} + \eta \cdot Weekend + \sum_{j=1}^{22} \theta_j \cdot Hour_{jt} \]

\[ + \sum_{j=11}^{12} \lambda_j \cdot PreEvent_{ij} + \rho_i \cdot Event_{i} + \sum_{j=18}^{20} \omega_j \cdot Snapback_{ij} + \varepsilon_{it} \]

where \( \beta, \gamma, \delta, \eta, \theta, \lambda, \rho, \omega \) are parameters to be estimated by the model and:

---

\(^{35}\) Cluster-robust errors account for heteroscedasticity and autocorrelation at the customer level. Ordinary Least Squares (OLS) regression models assume the data are homoscedastic and not autocorrelated. If either of these assumptions is broken, the resulting standard errors of the parameter estimates are likely underestimated. A random variable is heteroscedastic when the variance is not constant. A random variable is autocorrelated when the error term in this period is correlated with the error term in previous periods.
\[ i \] = Index for customers  
\[ t \] = Index for hourly time intervals  
\[ kW \] = Average Hourly kW  
\[ CDH \] = Cooling Degree Hours  
\[ THI \] = Temperature Humidity Index  
\[ PreEvent \] = Binary variable for pre-event hour j (set of two variables), the two hours prior to an event  
\[ Event \] = Binary variable for event hours  
\[ Snapback \] = Binary variable for snapback hour j (set of three variables), the three hours following an event  
\[ \alpha_i \] = The customer-specific constant term (“fixed effect”)  
\[ \varepsilon_{it} \] = The cluster-robust error term\(^{36}\)

The event impacts are determined by the parameter estimates for the Event binary variable \( \rho \).

Data were excluded from the regression model if any of the following criteria were met:

- The interval was outside the date range of May 1, 2010 to September 31, 2012.
- The usage was determined to be erroneous or an outlier.\(^{37}\)

### A.2 Energy Impact Analysis

#### Data Inputs

The energy impact analysis required monthly energy billing data for all pilot participants and a control group (refer to Table 3-1). The control group was selected from a pool of 979 customers that had interval metering installed and did not receive any treatment. Navigant received monthly billing data spanning May 2010 through September 2012. Navigant used daily weather data to calculate the heating and cooling degree days for each bill cycle. Monthly billing data was combined with the weather and demographic characteristics, as described in Appendix A.

#### Methodology

The first step of the event impact analysis was to select matched controls from the 979 control group customers. Navigant matched participants to control group customers with the same housing type\(^{38}\) by

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\(^{36}\) Cluster-robust errors account for heteroscedasticity and autocorrelation at the customer level. Ordinary Least Squares (OLS) regression models assume the data are homoscedastic and not autocorrelated. If either of these assumptions is broken, the resulting standard errors of the parameter estimates are likely underestimated. A random variable is heteroscedastic when the variance is not constant. A random variable is autocorrelated when the error term in this period is correlated with the error term in previous periods.

\(^{37}\) Navigant removed observations corresponding to no consumption (less than or equal to zero kW) or spikes in consumption (greater than 99\(^{\text{th}}\) Percentile – approximately 20 kW).
comparing monthly bills during the 12 months prior to pilot enrollment. The process consisted of two steps:

1. For each participant – control customer “pair”, calculate the sum of squared differences between the participant’s bills and the control customer’s bills during the 12 months prior to enrollment in the program.

2. Select the control group customer with the minimum sum of squared differences for each participant. This is the matched control for that participant. Note that a given control group customer may be selected as the matched control for multiple participants.

This matching process ensures that, on average, participants and matched controls have the same monthly energy consumption prior to the pilot period, implying that any difference in monthly energy consumption during the pilot period is a result of the pilot.

Once the matched controls were selected, Navigant estimated a seasonal regression model using monthly energy billing data for participants and matched controls. At a high level, Navigant estimated the energy impacts by comparing the usage for participants to usage for matched controls. The regression predicts average daily energy usage as a function of the heating or cooling degree days (HDD or CDD), a participation binary variable, a binary variable for households with more than two occupants, and a face-to-face training binary variable for the In-Home Display and Air Conditioning Load Management treatment groups. The regression model was estimated separately for each treatment group, season (winter or summer), and, if applicable, for the type of air conditioning system. Navigant estimated the following model for the IHD and ACLM groups during the summer season:

\[ kWh_{it} = \alpha + \beta \cdot CDD + \gamma \cdot Participant + \delta \cdot Family + \eta \cdot Training + \epsilon_{it} \]

Navigant estimated the following model for the In-Home Display and Air Conditioning Load Management groups during the winter season:

\[ kWh_{it} = \alpha + \beta \cdot CDD + \theta \cdot HDD + \gamma \cdot Participant + \delta \cdot Family + \eta \cdot Training + \epsilon_{it} \]

Navigant estimated the following model for the Peak Time Rebate and Web Portal groups during the summer season:

\[ kWh_{it} = \alpha + \beta \cdot CDD + \gamma \cdot Participant + \delta \cdot Family + \epsilon_{it} \]

Navigant estimated the following model for the Peak Time Rebate and Web Portal groups during the winter season:

\[ kWh_{it} = \alpha + \beta \cdot CDD + \gamma \cdot Participant + \delta \cdot Family + \epsilon_{it} \]

---

38 Housing types were provided in demographic data provided to Navigant by Entergy New Orleans. Housing types included the following: Single Family Homes, Duplexes, Apartments, Mobile Homes, and Other. Housing type was not part of the experimental design of the program, so not all housing types were represented in each treatment group.

39 Monthly energy usage is normalized by the number of days in the billing cycle to reduce variation in energy usage attributable to variation in billing cycle length.

40 Heating and cooling degree days were calculated with a base temperature of 65 degrees Fahrenheit. For each day, the following formulas were applied to NOAA weather data:

\[ CDD = \max(0, \text{average temperature} - 65) \]

\[ HDD = \max(0, 65 - \text{average temperature}) \]
\[ kWh_{it} = \alpha + \beta \cdot CDD + \theta \cdot HDD + \gamma \cdot \text{Participant} + \delta \cdot \text{Family} + \varepsilon_{it} \]

where \( \beta, \theta, \gamma, \delta, \eta \) are parameters to be estimated by the model and:

- \( i \) = Index for participants
- \( t \) = Index for days
- \( kWh \) = Average daily kWh
- \( CDD \) = Average daily Cooling Degree Days
- \( HDD \) = Average daily Heating Degree Days
- \( \text{Participant} \) = Binary variable for participants
- \( \text{Family} \) = Binary variable for households with more than two occupants
- \( \text{Training} \) = Binary variable for participants that received face-to-face training
- \( \varepsilon_{it} \) = The cluster-robust error term\(^{41}\)

Energy impacts are determined by the parameter estimate for the participation indicator variable (\( \gamma \)).

Data were excluded from the regression model if any of the following criteria were met:

- The interval was outside the date range of May 1, 2010 to September 31, 2012.
- The usage was determined to be erroneous or an outlier.\(^{42}\)

---

\(^{41}\) Cluster-robust errors account for heteroscedasticity and autocorrelation at the customer level. Ordinary Least Squares (OLS) regression models assume the data are homoscedastic and not autocorrelated. If either of these assumptions is broken, the resulting standard errors of the parameter estimates are likely underestimated. A random variable is heteroscedastic when the variance is not constant. A random variable is autocorrelated when the error term in this period is correlated with the error term in previous periods.

\(^{42}\) Navigant removed observations corresponding to no consumption (average daily consumption less than or equal to zero kWh) or spikes in monthly consumption (greater than 99\textsuperscript{th} Percentile – approximately 100 kWh per day). Additionally, a participant was removed if the average daily consumption decreased by more than 50\% of the previous year’s consumption.
Appendix B. Impact Analysis Detailed Results

This appendix contains the detailed results from the impact analysis.

Summer is defined as the period from June 1 through September 30. Winter is defined as the period from January 1 through May 31 and October 1 through December 31.

Event Impact Results – All Participants, by Pilot Test Group

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling Degree Hours</td>
<td>0.06</td>
<td>***</td>
</tr>
<tr>
<td>Temperature Humidity Index</td>
<td>0.02</td>
<td>***</td>
</tr>
<tr>
<td>Participant Binary Variable</td>
<td>-0.47</td>
<td>***</td>
</tr>
<tr>
<td>ACLM Event Binary Variable</td>
<td>-0.40</td>
<td>***</td>
</tr>
<tr>
<td>One Hour Prior To Event Binary Variable</td>
<td>-0.13</td>
<td>***</td>
</tr>
<tr>
<td>2 Hours Prior To Event Binary Variable</td>
<td>-0.15</td>
<td>***</td>
</tr>
<tr>
<td>One Hour Post Event Binary Variable</td>
<td>0.03</td>
<td>*</td>
</tr>
<tr>
<td>Two Hours Post Event Binary Variable</td>
<td>0.16</td>
<td>***</td>
</tr>
<tr>
<td>Three Hours Post Event Binary Variable</td>
<td>0.14</td>
<td>***</td>
</tr>
<tr>
<td>Weekend Binary Variable</td>
<td>0.10</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 12 AM Binary Variable</td>
<td>-0.28</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 1 AM Binary Variable</td>
<td>-0.40</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 2 AM Binary Variable</td>
<td>-0.50</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 3 AM Binary Variable</td>
<td>-0.55</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 4 AM Binary Variable</td>
<td>-0.62</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 5 AM Binary Variable</td>
<td>-0.74</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 6 AM Binary Variable</td>
<td>-1.00</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 7 AM Binary Variable</td>
<td>-1.24</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 8 AM Binary Variable</td>
<td>-1.34</td>
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</tr>
<tr>
<td>Hour Beginning 9 AM Binary Variable</td>
<td>-1.23</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 10 AM Binary Variable</td>
<td>-1.03</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 11 AM Binary Variable</td>
<td>-0.76</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 12 PM Binary Variable</td>
<td>-0.52</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 1 PM Binary Variable</td>
<td>-0.24</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 2 PM Binary Variable</td>
<td>-0.07</td>
<td>*</td>
</tr>
<tr>
<td>Hour Beginning 3 PM Binary Variable</td>
<td>0.08</td>
<td>*</td>
</tr>
</tbody>
</table>
### Table B-2. Peak Time Rebate Event Impact Model Output – All Participants

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling Degree Hours</td>
<td>0.05</td>
<td>***</td>
</tr>
<tr>
<td>Temperature Humidity Index</td>
<td>0.02</td>
<td>***</td>
</tr>
<tr>
<td>Participant Binary Variable</td>
<td>-0.43</td>
<td>***</td>
</tr>
<tr>
<td>PTR Event Binary Variable</td>
<td>-0.25</td>
<td>***</td>
</tr>
<tr>
<td>One Hour Prior To Event Binary Variable</td>
<td>-0.10</td>
<td>***</td>
</tr>
<tr>
<td>2 Hours Prior To Event Binary Variable</td>
<td>-0.10</td>
<td>***</td>
</tr>
<tr>
<td>One Hour Post Event Binary Variable</td>
<td>-0.13</td>
<td>***</td>
</tr>
<tr>
<td>Two Hours Post Event Binary Variable</td>
<td>-0.01</td>
<td>-</td>
</tr>
<tr>
<td>Three Hours Post Event Binary Variable</td>
<td>0.05</td>
<td>***</td>
</tr>
<tr>
<td>Weekend Binary Variable</td>
<td>0.08</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 12 AM Binary Variable</td>
<td>-0.17</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 1 AM Binary Variable</td>
<td>-0.31</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 2 AM Binary Variable</td>
<td>-0.43</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 3 AM Binary Variable</td>
<td>-0.49</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 4 AM Binary Variable</td>
<td>-0.56</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 5 AM Binary Variable</td>
<td>-0.66</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 6 AM Binary Variable</td>
<td>-0.90</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 7 AM Binary Variable</td>
<td>-1.07</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 8 AM Binary Variable</td>
<td>-1.10</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 9 AM Binary Variable</td>
<td>-1.03</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 10 AM Binary Variable</td>
<td>-0.91</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 11 AM Binary Variable</td>
<td>-0.73</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 12 PM Binary Variable</td>
<td>-0.57</td>
<td>***</td>
</tr>
</tbody>
</table>
### Variable Coefficient Significance

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hour Beginning 1 PM Binary Variable</td>
<td>-0.42</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 2 PM Binary Variable</td>
<td>-0.30</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 3 PM Binary Variable</td>
<td>-0.20</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 4 PM Binary Variable</td>
<td>-0.11</td>
<td>**</td>
</tr>
<tr>
<td>Hour Beginning 5 PM Binary Variable</td>
<td>0.06</td>
<td>-</td>
</tr>
<tr>
<td>Hour Beginning 6 PM Binary Variable</td>
<td>0.21</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 7 PM Binary Variable</td>
<td>0.25</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 8 PM Binary Variable</td>
<td>0.29</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 9 PM Binary Variable</td>
<td>0.28</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 10 PM Binary Variable</td>
<td>0.16</td>
<td>***</td>
</tr>
</tbody>
</table>

*** - 99% Confidence; ** - 95% Confidence; * - 90% Confidence; No Stars - Less Than 90% Confidence

### Table B-3. Peak Time Rebate Event Impact Model Output – Central AC Only

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling Degree Hours</td>
<td>0.05</td>
<td>***</td>
</tr>
<tr>
<td>Temperature Humidity Index</td>
<td>0.03</td>
<td>***</td>
</tr>
<tr>
<td>Participant Binary Variable</td>
<td>-0.51</td>
<td>***</td>
</tr>
<tr>
<td>PTR Event Binary Variable</td>
<td>-0.29</td>
<td>***</td>
</tr>
<tr>
<td>One Hour Prior To Event Binary Variable</td>
<td>-0.14</td>
<td>***</td>
</tr>
<tr>
<td>2 Hours Prior To Event Binary Variable</td>
<td>-0.13</td>
<td>***</td>
</tr>
<tr>
<td>One Hour Post Event Binary Variable</td>
<td>-0.15</td>
<td>***</td>
</tr>
<tr>
<td>Two Hours Post Event Binary Variable</td>
<td>-0.02</td>
<td>-</td>
</tr>
<tr>
<td>Three Hours Post Event Binary Variable</td>
<td>0.06</td>
<td>***</td>
</tr>
<tr>
<td>Weekend Binary Variable</td>
<td>0.10</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 12 AM Binary Variable</td>
<td>-0.20</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 1 AM Binary Variable</td>
<td>-0.36</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 2 AM Binary Variable</td>
<td>-0.50</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 3 AM Binary Variable</td>
<td>-0.58</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 4 AM Binary Variable</td>
<td>-0.66</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 5 AM Binary Variable</td>
<td>-0.75</td>
<td>***</td>
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<tr>
<td>Hour Beginning 6 AM Binary Variable</td>
<td>-1.02</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 7 AM Binary Variable</td>
<td>-1.20</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 8 AM Binary Variable</td>
<td>-1.21</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 9 AM Binary Variable</td>
<td>-1.11</td>
<td>***</td>
</tr>
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</table>
### Table B-4. Peak Time Rebate Event Impact Model Output – Without Central AC

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling Degree Hours</td>
<td>0.04</td>
<td>***</td>
</tr>
<tr>
<td>Temperature Humidity Index</td>
<td>0.02</td>
<td>***</td>
</tr>
<tr>
<td>Participant Binary Variable</td>
<td>-0.16</td>
<td>-</td>
</tr>
<tr>
<td>PTR Event Binary Variable</td>
<td>-0.13</td>
<td>***</td>
</tr>
<tr>
<td>One Hour Prior To Event Binary Variable</td>
<td>0.00</td>
<td>-</td>
</tr>
<tr>
<td>2 Hours Prior To Event Binary Variable</td>
<td>0.00</td>
<td>-</td>
</tr>
<tr>
<td>One Hour Post Event Binary Variable</td>
<td>-0.06</td>
<td>**</td>
</tr>
<tr>
<td>Two Hours Post Event Binary Variable</td>
<td>0.01</td>
<td>-</td>
</tr>
<tr>
<td>Three Hours Post Event Binary Variable</td>
<td>0.04</td>
<td>-</td>
</tr>
<tr>
<td>Weekend Binary Variable</td>
<td>0.04</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 12 AM Binary Variable</td>
<td>-0.09</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 1 AM Binary Variable</td>
<td>-0.17</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 2 AM Binary Variable</td>
<td>-0.24</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 3 AM Binary Variable</td>
<td>-0.29</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 4 AM Binary Variable</td>
<td>-0.33</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 5 AM Binary Variable</td>
<td>-0.42</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 6 AM Binary Variable</td>
<td>-0.62</td>
<td>***</td>
</tr>
<tr>
<td>Variable</td>
<td>Coefficient</td>
<td>Significance</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Hour Beginning 7 AM Binary Variable</td>
<td>-0.76</td>
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</tr>
<tr>
<td>Hour Beginning 8 AM Binary Variable</td>
<td>-0.82</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 9 AM Binary Variable</td>
<td>-0.85</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 10 AM Binary Variable</td>
<td>-0.85</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 11 AM Binary Variable</td>
<td>-0.80</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 12 PM Binary Variable</td>
<td>-0.73</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 1 PM Binary Variable</td>
<td>-0.65</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 2 PM Binary Variable</td>
<td>-0.57</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 3 PM Binary Variable</td>
<td>-0.50</td>
<td>***</td>
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<tr>
<td>Hour Beginning 4 PM Binary Variable</td>
<td>-0.41</td>
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<tr>
<td>Hour Beginning 5 PM Binary Variable</td>
<td>-0.26</td>
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<tr>
<td>Hour Beginning 6 PM Binary Variable</td>
<td>-0.09</td>
<td>*</td>
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<tr>
<td>Hour Beginning 7 PM Binary Variable</td>
<td>0.01</td>
<td>-</td>
</tr>
<tr>
<td>Hour Beginning 8 PM Binary Variable</td>
<td>0.11</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 9 PM Binary Variable</td>
<td>0.15</td>
<td>***</td>
</tr>
<tr>
<td>Hour Beginning 10 PM Binary Variable</td>
<td>0.10</td>
<td>***</td>
</tr>
</tbody>
</table>

*** - 99% Confidence; ** - 95% Confidence; * - 90% Confidence;
No Stars - Less Than 90% Confidence

Energy Impact Results – All Participants, by Pilot Test Group

Table B-5. Air Conditioning Load Management Energy Impact Model Output – Summer

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant Binary Variable</td>
<td>0.58</td>
<td>-</td>
</tr>
<tr>
<td>Average Daily Cooling Degree Days</td>
<td>2.71</td>
<td>***</td>
</tr>
<tr>
<td>Greater Than Two Occupants Binary Variable</td>
<td>16.53</td>
<td>***</td>
</tr>
<tr>
<td>Face-To-Face Training Binary Variable</td>
<td>-4.23</td>
<td>*</td>
</tr>
</tbody>
</table>

*** - 99% Confidence; ** - 95% Confidence; * - 90% Confidence;
No Stars - Less Than 90% Confidence

Table B-6. Peak Time Rebate Energy Impact Model Output – Summer

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant Binary Variable</td>
<td>-0.22</td>
<td>-</td>
</tr>
<tr>
<td>Average Daily Cooling Degree Days</td>
<td>2.51</td>
<td>***</td>
</tr>
<tr>
<td>Greater Than Two Occupants Binary Variable</td>
<td>19.96</td>
<td>***</td>
</tr>
</tbody>
</table>

*** - 99% Confidence; ** - 95% Confidence; * - 90% Confidence;
No Stars - Less Than 90% Confidence
### Table B-7. Web Portal Energy Impact Model Output – Summer

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant Binary Variable</td>
<td>-0.91</td>
<td>-</td>
</tr>
<tr>
<td>Average Daily Cooling Degree Days</td>
<td>2.24</td>
<td>**</td>
</tr>
<tr>
<td>Greater Than Two Occupants Binary Variable</td>
<td>22.79</td>
<td>**</td>
</tr>
</tbody>
</table>

*** - 99% Confidence; ** - 95% Confidence; * - 90% Confidence; No Stars - Less Than 90% Confidence

### Table B-8. In-Home Display Energy Impact Model Output – Summer

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant Binary Variable</td>
<td>0.88</td>
<td>-</td>
</tr>
<tr>
<td>Average Daily Cooling Degree Days</td>
<td>2.68</td>
<td>**</td>
</tr>
<tr>
<td>Greater Than Two Occupants Binary Variable</td>
<td>17.99</td>
<td>**</td>
</tr>
<tr>
<td>Face-To-Face Training Binary Variable</td>
<td>-5.14</td>
<td>**</td>
</tr>
</tbody>
</table>

*** - 99% Confidence; ** - 95% Confidence; * - 90% Confidence; No Stars - Less Than 90% Confidence
Figure C-1.
Figure C-2. IHD and Smart Thermostat screen

Figure C-3. Web Portal User Interface, “Historic Usage” Tab
Appendix D. Enrollment and Training Materials

Figure D-1. SmartView Solicitation Brochure

Start today. And let SmartView put you in control.

Signing up is easy...
Call toll free 1-855-33-SMART or visit entergyneworleans.com/smartview for helpful, no-obligation information on the SmartView Energy Management test programs. We will answer all your questions and guide you through the process.

You have the power to make a difference. You are in control.

Take Control with SmartView

If you know how your household is using electricity, you can make smarter choices that help you save money and take the surprise out of your electric bill.
How much electricity are you paying for each month that is simply being wasted? Lights on in an empty room. AC running with the outside door wide open. Television on, but no one’s home!

Wouldn’t it be nice if you could actually see how your electric dollars are being spent with no surprise at the end of the month? And wouldn’t it be even nicer if you had the tools to help lower your energy costs. At no additional expense to you!

Sign up today to become part of the SmartView Energy Management test programs co-sponsored by the U.S. Department of Energy and Entergy New Orleans, Inc.

You will receive tools and training on how to track your electricity usage, lower your costs, and, in some cases, receive credits on your electric bills.

How does SmartView work?

All participating customers receive a smart meter installed at no charge. Some customers receive an in-home display monitor to quickly view energy-use information or will be able to get information through the Internet.

You may also qualify for credits on your bill by shifting usage from high-demand daytime hours to lower-demand evening and early morning hours. Other customers will receive a Smart Thermostat.

We’ll show you how to use these tools to help you make smarter energy decisions that help reduce wasted energy, lower your costs, and make a difference in shaping future energy programs.

How do I qualify?

You must be an Entergy New Orleans residential electric customer with an active account since January 1, 2010 and verify household income as listed below.

<table>
<thead>
<tr>
<th>Qualifying Income Levels:</th>
<th>Number of People Living in Home</th>
<th>Total Household Annual Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Person</td>
<td>$33,520 or less</td>
<td></td>
</tr>
<tr>
<td>2 People</td>
<td>$38,240 or less</td>
<td></td>
</tr>
<tr>
<td>3 People</td>
<td>$43,040 or less</td>
<td></td>
</tr>
<tr>
<td>4 People</td>
<td>$47,840 or less</td>
<td></td>
</tr>
<tr>
<td>5 People</td>
<td>$51,680 or less</td>
<td></td>
</tr>
<tr>
<td>6 People</td>
<td>$55,520 or less</td>
<td></td>
</tr>
<tr>
<td>7 People</td>
<td>$59,360 or less</td>
<td></td>
</tr>
<tr>
<td>8 People</td>
<td>$63,120 or less</td>
<td></td>
</tr>
<tr>
<td>9 People</td>
<td>$66,960 or less</td>
<td></td>
</tr>
<tr>
<td>10 People</td>
<td>$70,800 or less</td>
<td></td>
</tr>
<tr>
<td>11 People</td>
<td>$74,640 or less</td>
<td></td>
</tr>
<tr>
<td>12 People</td>
<td>$78,480 or less</td>
<td></td>
</tr>
</tbody>
</table>

Program participants will be selected on a first-come, first-served basis and registration is limited.
Comience hoy.
Y deje que SmartView le dé el control.

La suscripción es sencilla...
Llame al número gratuito 1-855-33-SMART o visite enteryneworleans.com/smartview para recibir información útil, no obligatoria, sobre los programas de prueba de Administración de Energía SmartView. Responderemos a todas sus preguntas y lo orientaremos durante todo el proceso.

Usted tiene el poder de hacer la diferencia. Usted tiene el control.
¿Cuánto paga mensualmente por electricidad que simplemente está derrochando? Luces encendidas en una habitación vacía. Consumo de aire acondicionado con la puerta externa abierta de par en par. ¡La televisión encendida sin que nadie esté en la casa!

¿No sería bueno si pudieras ver realmente cómo es que gasta esos dólares que paga por la energía eléctrica sin tener sorpresas a fin de mes? ¿No sería aún mejor si tuvieras las herramientas para ayudarte a reducir sus costos energéticos sin costos adicionales para usted?

Suscríbete hoy para formar parte de los programas de prueba de Administración de Energía de SmartView, que están coprotagonizados por el Departamento de Energía de los Estados Unidos y Entergy New Orleans, Inc.

Recibirás herramientas y capacitación sobre cómo realizar un seguimiento de su consumo energético, reducir sus costos y, en algunos casos, recibir créditos en sus facturas del servicio de electricidad.

¿Cómo funciona SmartView?

Todos los clientes que participan reciben un medidor inteligente que se instalará sin cargo. Algunos clientes recibirán un monitor con pantalla para el hogar para ver rápidamente información sobre el uso de la electricidad. O bien, podrán obtener información por Internet.

También puedes reunir los requisitos para obtener créditos en su factura al cambiar el consumo de hora diurna de alta demanda a horas nocturnas y mínimos de demanda. Otros clientes recibirán un termostato inteligente.

Le mostraremos cómo usar estas herramientas para ayudarlo a tomar decisiones más inteligentes en relación con la energía que ayudarán a reducir el consumo de energía, reducir sus costos y hacer una diferencia en el desarrollo de futuros programas energéticos.

¿Cómo reúno los requisitos?

Debe ser cliente residencial del servicio de electricidad de Entergy New Orleans, debe tener una cuenta activa desde el 1 de enero de 2010 y verificar los ingresos de su hogar, según se detalla a continuación.

**NIVELES DE INGRESOS QUE RÚNEN LOS REQUISITOS:**

<table>
<thead>
<tr>
<th>Composición de personas</th>
<th>Ingresos anuales totales del hogar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Persona</td>
<td>$33,520 o menos</td>
</tr>
<tr>
<td>2 Personas</td>
<td>$38,340 o menos</td>
</tr>
<tr>
<td>3 Personas</td>
<td>$43,060 o menos</td>
</tr>
<tr>
<td>4 Personas</td>
<td>$47,780 o menos</td>
</tr>
<tr>
<td>5 Personas</td>
<td>$51,500 o menos</td>
</tr>
<tr>
<td>6 Personas</td>
<td>$55,220 o menos</td>
</tr>
<tr>
<td>7 Personas</td>
<td>$59,940 o menos</td>
</tr>
<tr>
<td>8 Personas</td>
<td>$64,660 o menos</td>
</tr>
<tr>
<td>9 Personas</td>
<td>$69,380 o menos</td>
</tr>
<tr>
<td>10 Personas</td>
<td>$74,100 o menos</td>
</tr>
<tr>
<td>11 Personas</td>
<td>$78,820 o menos</td>
</tr>
<tr>
<td>12 Personas</td>
<td>$83,540 o menos</td>
</tr>
</tbody>
</table>

Los participantes del programa serán seleccionados por orden de llegada y la inscripción está limitada.
Figure D-3. SmartView Enrollment Questionnaire

Entergy New Orleans Account Number ________________________
(Found on your monthly bill)

How did you learn about SmartView? (check one)

- Community office ____________________________
- Door-to-Door visit
- Mail
- Entergy Customer Care Center
- Phone call
- Other ____________________________

Please provide your name, telephone number and e-mail address so Entergy New Orleans can contact you if you are selected for participation in this test program.

Name on Entergy New Orleans account: ____________________________

Service address: ____________________________ ZIP code: __________

Home phone number: ____________________________ Cell phone number: ____________________________

E-mail address (if available): ____________________________

The questions below will assist Entergy New Orleans in working with you to gather and analyze the data collected from these programs, determine your SmartView eligibility, and identify which test program may be the best fit for you.

1. Which of the following best describes the property located at this address? (check only one)

- Single family house (shotgun, stand-alone building)
- Double, triplex or fourplex building (two, three or four units)
- Condo or Apartment building (more than four units)
- Mobile home or trailer
- Camp or vacation home
- Not a residence (water pump, barn, workshop, business, other)

2. Do you own or rent the home at this address?  

- Own or buying
- Renting or leasing

3. If you checked “own or buying,” how old is the home?

- 0 - 5 years
- 6 - 10 years
- 11 years or more
- Don't know

4. How long have you lived at this address?

- Less than one year
- More than one year

5. Do you have any natural gas appliances? (check all that apply)

- Gas furnace/heater
- Gas clothes dryer
- Gas water heater
- Gas stove/oven
- No gas

6. Are you able and comfortable accessing the Internet on a regular basis?

- Yes
- No

7. If able to access the Internet, how will you access the Internet? (check all that apply)

- Home
- Work
- Library
- Friend
- Phone

Please complete form on reverse side.
8. Do you have air conditioning?  □ Central air  □ Window units  □ No air conditioning

9. What is the highest level of education you have completed? (check only one)
   □ High School or GED  □ Trade school  □ Some college  □ Graduated College
   □ Post-graduate degree  □ Other ____________________________

10. Entergy New Orleans is partnering with customers and offering this program to customers with certain levels of household income who may benefit from participation/assistance. To help us determine if you qualify to participate in SmartView, please check the box that best describes the number of people who live full time in your home AND your total household annual income:

   Total Number of People Living in Your Home (check only one)
   □ 1 Person  □ 2 People  □ 3 People  □ 4 People  □ 5 People  □ 6 People
   □ 7 People  □ 8 People  □ 9 People  □ 10 People  □ 11 People  □ 12 People

   Total Annual Household Income (check only one)
   □ $33,520 or less  □ $38,240 or less  □ $43,040 or less  □ $47,840 or less  □ $51,680 or less
   □ $55,520 or less  □ $59,360 or less  □ $63,120 or less  □ $66,960 or less  □ $70,800 or less
   □ $74,640 or less  □ $78,480 or less  □ Over $78,481  □ I don't know

By my signature, I certify that: (1) I am the person named on my electric service account (or an official Designee); (2) that to the best of my knowledge, all information contained on this form is correct; and (3) I am interested in receiving more information about the SmartView program and possibly participating in the SmartView pilot test program with Entergy New Orleans, Inc.

Express Consent for Limited Release of Information
By order of the Council of the City of New Orleans, Entergy New Orleans, Inc. and its affiliates are expressly prohibited from engaging in the sale, exchange and/or barter of any Pilot Data to third parties.

I understand and agree that if I am selected to participate in Entergy New Orleans’s SmartView program, that my meter data and/or customer information (“Pilot Data”) will be disclosed and used by Entergy New Orleans, and/or its affiliates in delivering and analyzing the results of this SmartView program and/or in the provision of utility service to me. I understand that Pilot Data may be disclosed in the aggregate without separate identification of my specific customer information, subject to a Protective Order and/or Confidentiality Agreement, in regulatory proceedings before the Council of the City of New Orleans and/or to the U.S. Department of Energy in connection with its Smart Grid Investment Grant program and I consent to this disclosure for these limited purposes.

Signature ______________________ Date __________________

Thank you for your time and cooperation. You will receive further notification regarding your eligibility for the program.

Please return this questionnaire in the provided envelope to:  Entergy New Orleans, Inc.
ATTN: SmartView
P.O. Box 61000
New Orleans, LA 70161-9935
Figure D-4. SmartView Overview and FAQ Sheet

**Take Control with SmartView**

**Test Program Overview**

Test period begins Summer 2011 through Summer 2012.
Test program options are listed below.

**Test Program #1 – In Home Display device:**
- You’ll receive a smart meter that will replace your old meter.
- You’ll receive a digital energy monitor to use in your home:
  - See your current energy costs throughout the month.
  - See an estimated monthly bill.
  
  *Note: This program is available to customers who live in a single, double, triple or quadruple residence.*

**Test Program #2 – Web Portal:**
- You’ll receive a smart meter that will replace your old meter.
- You will also have access to an Entergy website to see your energy usage.
  - See your current energy costs throughout the month.
  - See an estimated monthly bill.
  
  *Note: This program is available to customers who have access to a computer and the Internet.*

**Test Program #3 – Peak Time Rebate:**
- You’ll receive a smart meter that will replace your old meter.
- You’ll receive a digital energy monitor to use in your home:
  - See your current energy costs throughout the month.
  - See an estimated monthly bill
  - Entergy will give you credits to your electric bill if you shift usage from high-demand daytime hours to lower-demand evening and early morning hours.
  
  *Note: This program is available to customers who live in a single, double, triple or quadruple residence.*

**Test Program #4 – Smart Thermostat:**
- You’ll receive a smart meter that will replace your old meter.
- You will also receive a smart thermostat connected to your AC. (You must be present for the thermostat to be installed)
- During certain times of the day, Entergy will automatically cycle off the thermostat for approximately twenty minutes, up to three times a day. Most people never notice this change, but this program can save you money at the end of the month on your bill.
  
  *Note: This program is available to customers who live in a single, double, triple or quadruple residence and who have a good working central air conditioning unit.*

**Signing up is easy. Call toll free 1-855-33-SMART or visit entergyneworleans.com/smartview.**

**Note:** Limited restrictions may apply to all of these programs.
Take Control with SmartView
Frequently Asked Questions

Why should I participate?
Using less power should result in lower electric bills. Plus, you will be doing your part to help the environment.

What will this cost me?
There are no additional costs to you for participating in this program and receiving the tools.

Will I lose benefits from other state or federal programs in which I am currently participating?
No, this will not interfere with any other programs.

Do you guarantee I’ll have lower electric bills?
No, but if you take action based on the information you receive through your SmartView tools and use less electricity, you should experience lower bills.

How do I know if I qualify?
There are several programs available. You need to be an Entergy New Orleans electric customer since Jan. 2010, complete and sign the enrollment application and meet the household income requirements. Call 1-877-737-SMART to speak to an Entergy representative and we will help you determine the program that is right for you.

Can I choose to get out of the program?
Yes. You can call Entergy if at any point you choose to stop participating in the program with no penalties.
Take the surprise out of your electric bill and 

Take Control with SmartView

As part of a test program co-sponsored by the U.S. Department of Energy and Entergy New Orleans, Inc., you will receive tools and training from Entergy New Orleans on how to track your electricity usage and potentially lower your energy costs. At no additional expense to you!

Did you say incentives?
Sign up today and you may also qualify for credits on your electric bills. Ask the SmartView representative how.

How do I qualify?
You must be an Entergy New Orleans residential electric customer with an active account since June 1, 2010 and verify household income as listed to the right.

Don't miss out!
The deadline to enroll is April 30, 2011. Program participants will be selected on a first-come, first-served basis.

Start today. And let SmartView put you in control.
Signing up is easy. Call us toll free 1-855-33-SMART (1-855-337-6278) for helpful, no-obligation information.

You have the power to make a difference. You are in control.
Figure D-6. SmartView Training Handouts for ACLM, PTR, and IHD Participants
Entergy New Orleans

SmartView Training Handouts
Introduction

Welcome to Entergy New Orleans SmartView Training! By now, you should have had a smart meter installed at your residence which looks similar to the one pictured here.

In addition, you may receive other equipment based on the program you selected.

<table>
<thead>
<tr>
<th>Program</th>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portal Program</td>
<td>Entergy online web page (accessed through MyAccount online)</td>
</tr>
<tr>
<td>In-home Display (IHD) Program</td>
<td>In-home Display (IHD) device (Optional: Portal is also available)</td>
</tr>
<tr>
<td>AC Load Management</td>
<td>Smart thermostat (Optional: Portal is also available)</td>
</tr>
<tr>
<td>Peak Time Rebate</td>
<td>In-home Display (IHD) device (Optional: Portal is also available)</td>
</tr>
</tbody>
</table>
In order to access the Entergy Portal, you must first register for **My Account Online**.

1. To register, you will need your **account number** and the **service location ZIP code from your bill**.
3. Click **Register Now**.

4. Fill in the New User Registration form and follow the instructions on the screen.

Once you have successfully registered for My Account Online, do the following to access the portal:

2. **Login** to My Account Online.
3. From the main window, select **Account Details**.
Projected Bill

Charges displayed by actuals “to date” and projection for full month’s usage based on actual “to date”.

If you click on “Show me” above the graph, the following information will appear:

Your electricity bill is based on how much energy is used by the electric appliances in your home or business. Your electric usage depends on your family size, lifestyle, comfort level desired, and the weather. It is measured in kilowatt-hours (kWh). Your meter measures the kWh used in your home or business.

If you click on “Explain More…” below the graph, the following information will appear:

- Fuel costs may change near the end of the month and affect the amount of the bill shown.
- Your next bill may contain additional amounts, such as gas service or security lighting, or other charges and credits not shown below.
Historical Usage

Select a timeframe from the drop-down list.

Select a timeframe by dragging the slide across the bar.

You can zoom to historical usage by Day, Week, or Month.

Click Month. This view will show daily usage during the month.
Click Week. This view will show hourly usage during the week.

Click Day. This view will show hourly interval usage for the day.
Program Names: In-Home Display Device (IHD)

Name of Equipment: In-Home Display Device (IHD)

Description:
You’ll receive a smart meter that will replace your old meter. You’ll have access to an Entergy website to see your energy usage:
- See your current energy costs throughout the month
- See an estimated monthly bill
IHD Device

The IHD data is updated every 15 minutes.

Startup Screens

**Splash Screen**
This is the splash screen that will appear on the IHD when it is turned on. It will disappear after a couple of seconds.

**Waiting for Signal**
This is the second startup screen that will appear after the meter is found.
Signal Details

This is the third startup screen that will appear.

Home Screen

This is the Home screen that appears after the startup screens disappear. It displays your project bill for the month, the usage for the past four hours, and the current kW usage.

- Press Cost button to see detailed cost information.
- Press Menu button to display the main menu
- Press Usage button to see detailed usage information.

IHD Screens

Cost Disclaimer

Press Cost button on Home screen to get to this screen. The first screen you see will be this disclaimer.

- Press OK button on the disclaimer screen to proceed to the detailed cost information screen.
**Electric Cost**

Press **OK** button on Disclaimer screen to get to this screen. This screen provides details about your electric cost. **Days of Service** shows number of days into your billing cycle.

- Press **Home** button to return to home screen

**Usage Disclaimer**

Press **Usage** button on Home screen to get to this screen. The first screen you see will be this disclaimer.

- Press **OK** button on the disclaimer screen to proceed to the detailed usage information screen in the form of a daily graph.

**Daily Graph**

After pressing **OK** on the disclaimer screen, you will see this screen. This screen shows the electric kwh per day. In the bar chart, each bar represents one day.

- Press **Hourly** button to see electric kwh per hour
- Press **Back** button to return to previous screen
- Press **Home** button to return to home screen
**Hourly Graph**

Press **Hourly** button on the Daily Graph screen to get to this screen. This screen shows the electric kwh per hour. In the bar chart, each bar represents **one hour**.

- Press **Daily** button to see electric kwh per day
- Press **Back** button to return to previous screen
- Press **Home** button to go to home screen

**Main Menu**

Press **Menu** button on the Home screen to get to this screen. This screen provides options for seeing the current meter reading, changing settings for the backlight, and resetting the graph.

- Press **OK** button to accept menu choice
- Press **Back** button to return to previous screen
- Press **Next** button to go to next screen

**Meter Reading**

Select **Meter Reading** from the main menu and select **Back** to get to this screen. This screen provides the current meter reading.
Select **Backlight** to change settings for the backlight.

Select **Reset Graph** to reset the graph (troubleshooting).

**Messages**

The following is an example of a message that might appear on your screen, indicating that the data has not yet been updated, but that Entergy is investigating.

You may receive other messages from time to time. These messages will appear on the first screen displayed. Read the message and then press **OK** or **Home**.
IHD Safety Precautions

- Do not locate the IHD near water (sink, bathroom, etc.)
- Do not operate IHD if there are any cracks in plastic housing of power supply, display unit, or cord.
- Plug power supply firmly into allow; do not allow prongs to be partially exposed.
- Use only the power supply that was provided with the IHD.

IHD Troubleshooting

1. The IHD screen is blank or IHD data is not updating.
   a) The IHD may need to be recharged. Plug the IHD into an electrical socket. The battery needs 4 hours to fully charge. If you are trying to use the IHD while it is unplugged, the IHD’s backup battery may need to be replaced.
   b) The IHD may be out of range to receive signals from the electric meter. Move the IHD to a location closer to the wall where the electric meter is located.
   c) The IHD must be pre-registered to communicate with the electric meter. Entergy programmed your IHD to work with your specific meter prior to you receiving it. Note: Your IHD will not work in another house.

2. The IHD’s background color has changed.
   a) A blue background is normal; however, these settings can be changed through the Main Menu by selecting Backlight.
   b) For certain programs, the display may turn red if an event is in progress.

3. The IHD information does not match my Entergy bill.
   a) The IHD only provides information about your home’s ELECTRIC usage and cost, NOT other charges on your Entergy bill.
   b) When you first receive your IHD, it begins accumulating and showing information from THAT POINT FORWARD. Since the display cannot retrieve previous electric data, the first billing cycle will only show partial information. Once your next billing cycle begins, the display will show cumulative billing cycle data normally.
   c) The IHD shows raw electricity usage data in real-time and cumulative since the start of your billing cycle, whereas your Entergy bill is based on a specific moment when the Entergy meter was read at the end of your billing cycle. It is normal to see a small different between these two values. The Entergy utility bill contains the official information.
   d) The IHD shows electricity cost information currently in effect, but will likely change before the end of the cycle. However, any changes in base rates or Fuel Cost Adjustment are implemented on the meter reading date, so the cost information shown on the IHD will be most accurate on your meter reading date.

4. I turned appliances off and on and didn’t see a change in the IHD data.
   a) The IHD shows real-time electricity usage, but appliances use electricity at different rates so the impact will vary based on what appliances you turn off or on. For example, you will not see a significant change if you turn off/on a few lamps, however, you should see a significant change if you turn off/on the central air conditioning.
Energy Efficient Tips!

What Uses the Most?
Knowing where the big energy users are will help you become a better energy manager. As you can see, heating/air conditioning and water heating account for three-quarters of your energy use.

Simple Steps – Summer

The air conditioning is your largest energy user:

- Set your thermostat to 78 or the highest comfortable temperature. Each degree cooler than 78 will increase your bill as much as 3%. If you're going to be away for an extended period, set your air conditioner to 80 degrees or higher.

- Place window and central air conditioning units on the shady or north side of your home when possible. When using window units, shut doors to unused rooms, and close floor or wall registers used for heating.

- Install solar screens or films on sunny windows to reduce heat gain in your home, thus reducing air conditioning costs.
• Keep air conditioner filters clean. Aluminum mesh filters should be washed and fiberglass filters should be replaced monthly.
• Leave storm windows and doors closed when the air conditioner is on.
• Close shades and drapes on the sunny side of the house during the day to keep light and heat out.
• Don’t block air vents with curtains, shades or furniture.
• Keep the cool air in your home circulating with ceiling, oscillating or box fans. Circulating air makes you feel cooler and allows you to set your thermostat higher.
• Use kitchen and bathroom exhaust fans to remove excess heat and humidity caused by cooking, laundering and bathing.
• We recommend energy-efficient heat pumps of 11 SEER or higher. A heat pump is one of the most energy-efficient ways to heat and cool your home.

![Image of water heater]

The water heater is your second-largest energy user, and there are many ways to save by using hot water efficiently.

• Be sure that you have an energy-efficient water heater. To check, read the label or call your local power company. Also place the water heater as close as possible to the area where you use hot water most.
• Newer dishwashers have a preheating element, allowing you to set your water heater thermostat back to 110 degrees. Always turn off the circuit breaker before adjusting the thermostat on your water heater.
• While shaving, don’t run the hot water. Fill the basin and save up to six gallons of hot water in five minutes.
• Insulate the pipes going into and out of the tank.
• Drain a gallon of water once a year through the faucet at the bottom of the water heater to remove sediment that decreases energy efficiency.
• Fix leaky faucets. They can waste up to 3,000 gallons of hot water a year.
• Quick showers use less than one-half as much hot water as a bath. Flow-restricting shower heads can significantly reduce water usage.
• Wash full loads of clothes in the coolest water possible. Always rinse in cold water.
• Run the dishwasher only when it’s full.
• Turn the water heater off when you’re away from home for more than a weekend.
5 Tips to Live By

Saving money on your energy bill is easier than you think. By following some or all of the following energy saving tips, you’ll see that conserving energy is not only good for the environment; it’s good for your wallet.

1. Seal the Duct Work

In eight out of ten houses in the South, leaky ducts waste more energy than any other problem. To stop this energy loss, your ductwork should be made airtight - everywhere ducts attach to vents, each other and the heating/cooling unit. Use mastic (preferred) or foil tape. Some do-it-yourselfers can handle this job; other homeowners may want to hire a professional.

2. Install Energy-Efficient Light Bulbs

Every home has lights, and new compact fluorescent light bulbs can save a lot of energy. They cost more, but they last much longer than regular incandescent bulbs. In fact, compact fluorescents can save enough energy to pay for themselves twice.

3. Add Attic Insulation

About half of all homes have attics with insufficient insulation. A good rule of thumb is that if you have less than six inches of insulation, you need more. In general, you would benefit from up to 12 inches of attic insulation. Insulation is rated by "R-values." In the attic, you should insulate at least to R-30, or six to eight inches. Insulate walls as much as their thickness allows, and floors to at least R-19, or six inches. Cellulose insulation is recommended.

4. Wrap your Water Heater

In most homes, insulating your water heater and the pipes that lead to and from it is the single most cost effective improvement you can make. A water heater jacket can be purchased for as little as $10 to $15, and you can install it yourself.

5. Seal other Air Leaks

Air infiltration from the outside is another huge energy loser. In a drafty home, the air may "turn over" several times an hour, meaning that the home’s entire volume of air must be reheated or re-cooled that often. A tight house sees a complete air exchange only once every two to three hours.

Caulking and weather-stripping are the keys, and here are some of the biggest offenders to look for:

- **Fireplaces.** Caulk everywhere the brick or stone meets the walls and ceilings. Cover the opening with tight-fitting glass doors.
- **Attic Fans.** If you have an attic fan that you don’t use, seal the opening with a temporary or permanent cover.
• **Recessed Lights.** A lot of heat can escape through the openings cut for recessed lights. Newer models can be covered with insulation. Older models require a makeshift cover like a bucket turned upside down in the attic.

• **Windows and Doors.** Install weather-stripping on any that do not fit tightly.

• **Attic Entrances.** Insulate and weather-strip any entrances from your home into the attic. With a little detective work, you may find a lot of other leaks. Feel for air coming in through cracks and around windows and doors. For a more sensitive test, hold a lighted candle near cracks.

**Energy Efficiency information**


The ENsight window will appear. Select **For Your Home**.
As shown below, you now have at your fingertips numerous energy saving tips and calculator to determine how much energy you are using.
Vampire Power

Even when the household appliances are turned off, most are still using electricity. Appliances are either in **passive** standby mode (the clock on the microwave is still ticking) or active standby mode (the VCR is off, but programmed to record something).

Vampire Energy

Even when household appliances are turned off, most are still using some electricity. Appliances are either in passive standby mode (the clock on the microwave is still ticking) or active standby mode (the VCR is off, but programmed to record something). These numbers are for average standby modes, showing how much electricity is sucked out annually, in kilowatt hours, and what it costs you—assuming 11 cents per kilowatt hour. Red lines show passive standby mode; blue lines show active standby mode.

Vampire energy is estimated to cost U.S. consumers $3 billion a year.

**Sources:** 2005 Intrusive Residential Standby Service Report: Department of Energy
Support

If you have any problems with your equipment, or if you have any questions, please call the SmartView Support Center at:

1-855-33-SMART (1-855-337-6278)
AC Load Management Addendum

<table>
<thead>
<tr>
<th>Program Name:</th>
<th>AC Load Management</th>
<th>Name of Equipment:</th>
<th>Smart Thermostat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>You’ll receive a smart meter that will replace your old meter. You’ll receive a smart thermostat connected to your AC.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• During certain times of the day, Entergy will automatically cycle off the thermostat for approximately twenty minutes, up to three times a day. Most people never notice this change, but this program can save you money at the end of the month on your bill.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There are peak and off-peak times for energy usage as well. Peak time is between 1:00 P.M. to 6:00 P.M. This is the period of time when people return home from work or school, TVs and lights are turned on, and energy demand increases.

An event is a day that you’re AC will automatically prevent the AC from cycling on for 20 minutes between the hours of 1:00pm to 6:00pm. You will have the ability to override. The following screen will appear:

WARNING

Overriding the energy level may result in higher energy costs. Are you sure?

Cancel  Confirm
The Smart Thermostat screens are the same as the IHD screens. In addition, your IHD will turn red when you are in an event.

How is my credit calculated?

Once you successfully complete your application and are assigned to the AC Load Management program, you will receive a $25 participation credit which will appear on your bill.

If you remain in the program for the 4 months (Jun-Sep 2011) and don’t override more than twice in a billing cycle, you will receive a $12 participation credit each of those cycles. In order to receive your $12 participation credit for the month, you must not override the system more than twice in a billing cycle.

If you remain in the program until Oct 2012 you will receive another $25 participation credit for filling out the final survey.

Support

If you have any problems with your equipment, or if you have any questions, please call the SmartView Support Center at:

1-855-33-SMART (1-855-337-6278)
Peak Time Rebate Addendum

<table>
<thead>
<tr>
<th>Program Name:</th>
<th>Peak Time Rebate</th>
<th>Name of Equipment:</th>
<th>In-Home Display Device (IHD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>You’ll receive a smart meter that will replace your old meter. You’ll have access to an Entergy website to see your energy usage:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• See your current energy costs throughout the month</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• See an estimated monthly bill</td>
<td></td>
<td></td>
</tr>
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<td></td>
<td>• Entergy will give you credits to your electric bill if you shift usage from high-demand daytime hours to lower-demand evening and early morning hours.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The IHD screens for Peak Time Rebate are the same as those covered previously for the IHD program. In addition, your IHD will turn red when you are in an event.
1. Click Account Detail.

2. Click View Peak Time Event Rebates.

Click on an event day (highlighted in red) to see more details.

- Event day
- Number of Event days
- Total credit
If you are in an event, the following message will appear. Click **OK**.

Click on the graph to see more details.
How is my credit calculated?

The two days prior to the event and the two days following the event (4 days total) will be averaged.

Your credit will consist of approximately 23¢ (23.23831¢ to be exact!) per kWh saved during your event.

You will receive 23¢ per kWh saved during an event. Once you successfully complete your application and are assigned to the Peak Time Rebate program, you will receive a $25 participation credit which will appear on your bill. If you remain in the program until Oct 2012 you will receive another $25 participation credit for filling out the final survey.

Support

If you have any problems with your equipment, or if you have any questions, please call the SmartView Support Center at:

1-855-33-SMART (1-855-337-6278)
Figure D-9. Portal Only Training Handout

Portal Group

Entergy New Orleans

SmartView Training Handouts
Welcome to Entergy New Orleans SmartView Training! By now, you should have had a smart meter installed at your residence which looks similar to the one pictured here.

In addition, you may receive other equipment based on the program you selected.

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<td>Peak Time Rebate</td>
<td>In-home Display (IHD) device (Optional: Portal is also available)</td>
</tr>
</tbody>
</table>
In order to access the Entergy Portal, you must first register for **My Account Online**.

5. To register, you will need your **account number** and the **service location ZIP code from your bill**.
7. Click **Register Now**.

8. Fill in the **New User Registration form** and follow the instructions on the screen.

Once you have successfully registered for My Account Online, do the following to access the portal:

5. **Login** to My Account Online.
6. From the main window, select **Account Details**.

1. Click **Account Detail**.

2. Click **View Projected Bill and Usage**.
Projected Bill

If you click on “Show me” above the graph, the following information will appear:

Your electricity bill is based on how much energy is used by the electric appliances in your home or business. Your electric usage depends on your family size, lifestyle, comfort level desired, and the weather. It is measured in kilowatt-hours (kWh). Your meter measures the kWh used in your home or business.

If you click on “Explain More...” below the graph, the following information will appear:

- Fuel costs may change near the end of the month and affect the amount of the bill shown.
- Your next bill may contain additional amounts, such as gas service or security lighting, or other charges and credits not shown below.
Historical Usage

Select a timeframe from the drop-down list.

Select a timeframe by dragging the slide across the bar.

Historic Usage tab

You can zoom to historical usage by Day, Week, or Month.

Click Month. This view will show daily usage during the month.
Click Week. This view will show hourly usage during the week.

Click Day. This view will show hourly interval usage for the day.
Energy Efficient Tips!

What Uses the Most?
Knowing where the big energy users are will help you become a better energy manager. As you can see, heating/air conditioning and water heating account for three-quarters of your energy use.

Simple Steps – Summer

The air conditioning is your largest energy user:

- Set your thermostat to 78 or the highest comfortable temperature. Each degree cooler than 78 will increase your bill as much as 3%. If you're going to be away for an extended period, set your air conditioner to 80 degrees or higher.

- Place window and central air conditioning units on the shady or north side of your home when possible. When using window units, shut doors to unused rooms, and close floor or wall registers used for heating.

- Install solar screens or films on sunny windows to reduce heat gain in your home, thus reducing air conditioning costs.

- Keep air conditioner filters clean. Aluminum mesh filters should be washed and fiberglass filters should be replaced monthly.
• Leave storm windows and doors closed when the air conditioner is on.
• Close shades and drapes on the sunny side of the house during the day to keep light and heat out.
• Don't block air vents with curtains, shades or furniture.
• Keep the cool air in your home circulating with ceiling, oscillating or box fans. Circulating air makes you feel cooler and allows you to set your thermostat higher.
• Use kitchen and bathroom exhaust fans to remove excess heat and humidity caused by cooking, laundering and bathing.
• We recommend energy-efficient heat pumps of 11 SEER or higher. A heat pump is one of the most energy-efficient ways to heat and cool your home.

The water heater is your second-largest energy user, and there are many ways to save by using hot water efficiently.

• Be sure that you have an energy-efficient water heater. To check, read the label or call your local power company. Also place the water heater as close as possible to the area where you use hot water most.
• Newer dishwashers have a preheating element, allowing you to set your water heater thermostat back to 110 degrees. Always turn off the circuit breaker before adjusting the thermostat on your water heater.
• While shaving, don't run the hot water. Fill the basin and save up to six gallons of hot water in five minutes.
• Insulate the pipes going into and out of the tank.
• Drain a gallon of water once a year through the faucet at the bottom of the water heater to remove sediment that decreases energy efficiency.
• Fix leaky faucets. They can waste up to 3,000 gallons of hot water a year.
• Quick showers use less than one-half as much hot water as a bath. Flow-restricting shower heads can significantly reduce water usage.
• Wash full loads of clothes in the coolest water possible. Always rinse in cold water.
• Run the dishwasher only when it's full.
• Turn the water heater off when you're away from home for more than a weekend.

5 Tips to Live By
Saving money on your energy bill is easier than you think. By following some or all of the following energy saving tips, you’ll see that conserving energy is not only good for the environment; it’s good for your wallet.

1. **Seal the Duct Work**

   In eight out of ten houses in the South, leaky ducts waste more energy than any other problem. To stop this energy loss, your ductwork should be made airtight - everywhere ducts attach to vents, each other and the heating/cooling unit. Use mastic (preferred) or foil tape. Some do-it-yourselfers can handle this job; other homeowners may want to hire a professional.

2. **Install Energy-Efficient Light Bulbs**

   Every home has lights, and new compact fluorescent light bulbs can save a lot of energy. They cost more, but they last much longer than regular incandescent bulbs. In fact, compact fluorescents can save enough energy to pay for themselves twice.

3. **Add Attic Insulation**

   About half of all homes have attics with insufficient insulation. A good rule of thumb is that if you have less than six inches of insulation, you need more. In general, you would benefit from up to 12 inches of attic insulation. Insulation is rated by "R-values." In the attic, you should insulate at least to R-30, or six to eight inches. Insulate walls as much as their thickness allows, and floors to at least R-19, or six inches. Cellulose insulation is recommended.

4. **Wrap your Water Heater**

   In most homes, insulating your water heater and the pipes that lead to and from it is the single most cost effective improvement you can make. A water heater jacket can be purchased for as little as $10 to $15, and you can install it yourself.

5. **Seal other Air Leaks**

   Air infiltration from the outside is another huge energy loser. In a drafty home, the air may "turn over" several times an hour, meaning that the home’s entire volume of air must be reheated or re-cooled that often. A tight house sees a complete air exchange only once every two to three hours.

   Caulking and weather-stripping are the keys, and here are some of the biggest offenders to look for:

   - **Fireplaces.** Caulk everywhere the brick or stone meets the walls and ceilings. Cover the opening with tight-fitting glass doors.
   - **Attic Fans.** If you have an attic fan that you don’t use, seal the opening with a temporary or permanent cover.
   - **Recessed Lights.** A lot of heat can escape through the openings cut for recessed lights. Newer models can be covered with insulation. Older models require a makeshift cover like a bucket turned upside down in the attic.
• **Windows and Doors.** Install weather-stripping on any that do not fit tightly.

• **Attic Entrances.** Insulate and weather-strip any entrances from your home into the attic. With a little detective work, you may find a lot of other leaks. Feel for air coming in through cracks and around windows and doors. For a more sensitive test, hold a lighted candle near cracks.

**Energy Efficiency information**


The ENsight window will appear. Select **For Your Home**.
As shown below, you now have at your fingertips numerous energy saving tips and calculator to determine how much energy you are using.
Vampire Power

Even when the household appliances are turned off, most are still using electricity. Appliances are either in passive standby mode (the clock on the microwave is still ticking) or active standby mode (the VCR is off, but programmed to record something).

### Vampire Energy

<table>
<thead>
<tr>
<th>Appliance</th>
<th>kWh/yr</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio</td>
<td>13.1</td>
<td>$1.40</td>
</tr>
<tr>
<td>Cordless phone base station</td>
<td>26.5</td>
<td>$3.10</td>
</tr>
<tr>
<td>Laptop</td>
<td>22.8</td>
<td>$2.51</td>
</tr>
<tr>
<td>Laptop printer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plasma TV</td>
<td>144.5</td>
<td>$15.90</td>
</tr>
<tr>
<td>VCR</td>
<td>119.8</td>
<td>$12.43</td>
</tr>
<tr>
<td>DVD player</td>
<td>78.8</td>
<td>$8.67</td>
</tr>
<tr>
<td>Game console</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connection microwave</td>
<td>33.0</td>
<td>$3.33</td>
</tr>
<tr>
<td>Rechargeable toothbrush</td>
<td>12.3</td>
<td>$1.35</td>
</tr>
</tbody>
</table>

These numbers are for average standby modes, showing how much electricity is sucked out annually, in kilowatt hours, and what it costs you—assuming 11 cents per kilowatt hour. Red lines show passive standby mode; blue lines show active standby mode.

Vampire energy is estimated to cost U.S. consumers $3 billion a year.

Sources: 2005 Intrusive Residential Standby Service Report: Department of Energy
Support

If you have any problems with your equipment, or if you have any questions, please call the SmartView Support Center at:

1-855-33-SMART (1-855-337-6278)
Figure E-1. Was the level of information you received about the technology during the pilot program:

<table>
<thead>
<tr>
<th>Service</th>
<th>About Right</th>
<th>Too Little</th>
<th>Too Much</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/C Load Management</td>
<td>86%</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>Peak Time Rebate</td>
<td>83%</td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td>IHD</td>
<td>87%</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>Portal Only</td>
<td>75%</td>
<td>21%</td>
<td></td>
</tr>
</tbody>
</table>
Figure E-2. Did participating in the program help you think about ways to save money on your Entergy bill?

Figure E-3. Did checking your energy usage cause you to make changes to lower your bill?
Figure E-4. Which of the following actions have you recently taken in your home to save money?

a. Adjusted thermostat

<table>
<thead>
<tr>
<th>Action</th>
<th>A/C Load Management</th>
<th>Peak Time Rebate</th>
<th>IHD</th>
<th>Portal Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>2%</td>
<td>4%</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Sometimes</td>
<td>26%</td>
<td>22%</td>
<td>19%</td>
<td>17%</td>
</tr>
<tr>
<td>Always</td>
<td>72%</td>
<td>75%</td>
<td>75%</td>
<td>77%</td>
</tr>
</tbody>
</table>

b. Turned thermostat up when leaving the house

<table>
<thead>
<tr>
<th>Action</th>
<th>A/C Load Management</th>
<th>Peak Time Rebate</th>
<th>IHD</th>
<th>Portal Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>30%</td>
<td>22%</td>
<td>21%</td>
<td>24%</td>
</tr>
<tr>
<td>Sometimes</td>
<td>26%</td>
<td>25%</td>
<td>31%</td>
<td>21%</td>
</tr>
<tr>
<td>Always</td>
<td>43%</td>
<td>53%</td>
<td>48%</td>
<td>55%</td>
</tr>
</tbody>
</table>
c. Turned lights off when not in room

![Bar chart showing percentage of respondents per group for turning off lights when not in room.]

- A/C Load Management: 87% Never, 12% Sometimes, 1% Always
- Peak Time Rebate: 87% Never, 12% Sometimes, 1% Always
- IHD: 89% Never, 9% Sometimes, 2% Always
- Portal Only: 94% Never, <1% Sometimes, 5% Always

d. Set water heater at medium temperature

![Bar chart showing percentage of respondents per group for setting water heater at medium temperature.]

- A/C Load Management: 62% Never, 23% Sometimes, 15% Always
- Peak Time Rebate: 62% Never, 22% Sometimes, 16% Always
- IHD: 63% Never, 24% Sometimes, 13% Always
- Portal Only: 62% Never, 26% Sometimes, 12% Always
e. Unplugged appliances when not in use
Figure E-5. Did you experience equipment malfunction?

Figure E-6. If you experienced equipment malfunction (or other issues), did you contact SmartView Business Support Center to troubleshoot the issue?
Figure E- 7. Portal Only: Did you contact SmartView Business Center with any issues?

Figure E- 8. Was the SmartView Business Support Center representative able to solve your connection issue over the phone?
Figure E-9. Portal Only: Was the SmartView Business Support Center representative able to solve your issue over the phone?

- Yes: 89%
- No: 11%

Figure E-10. Did you have any questions regarding the accuracy of your electric bill during the pilot program?

- A/C Load Management: 16% Yes, 84% No
- Peak Time Rebate: 22% Yes, 79% No
- IHD: 16% Yes, 84% No
- Portal Only: 18% Yes, 82% No
Figure E- 11. Were you contacted by any of the community partners affiliated with the SmartView program?

Figure E- 12. Were the community partners helpful with registration and education?
Figure E-13. Additional comments on the understandability of the smart thermostat

- Great Device/ Easy to use
- Would like appliance-specific usage information
- Would have preferred customer service to call more frequently to check up
- When set to one temp, it changed to another without touching tstat
- Should include concise instructional info card
- Need more training
- Need more information
- May have additional questions when weather changes
- Malfunctioned
- I found it challenging to program tstat when I’m not home
- I found it challenging to program tstat to auto
- Hard to understand at first/Needed to get used to using it
- Good instructions during installation
- Estimated total is not accurate
- Effective customer support
- Does not come on automatically in the heat mode have to put in cycle mode
- Unsure whether to keep tstat on all the time
- Did not have tstat when given instructions (at home); Instructions were rapid
- Delay in usability due to having to get tstat reset
- "Change filter" displayed on tstat even after changing filter

*Verbatim responses are summarized into the above buckets.

Figure E-14. ACLM: How many A/C Load Management events were you aware of?
Figure E-15. ACLM: Were you forced to override the A/C system during any of the A/C Load Management events?

Figure E-16. ACLM: Did you ever override the system more than 2 times in a single month?
Figure E-17. PTR: Do you have any additional comments on the IHD?

<table>
<thead>
<tr>
<th>Comment</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great device/Easy to Use</td>
<td></td>
</tr>
<tr>
<td>Helped to save money</td>
<td>8</td>
</tr>
<tr>
<td>Handy/informative</td>
<td></td>
</tr>
<tr>
<td>Customer support responded to IHD malfunction quickly and efficiently</td>
<td></td>
</tr>
<tr>
<td>Would have liked whole home energy efficiency evaluation</td>
<td></td>
</tr>
<tr>
<td>Will I have to return device/will there be another program?</td>
<td></td>
</tr>
<tr>
<td>When I use heating system it jumps very high</td>
<td></td>
</tr>
<tr>
<td>Was able to see how much different appliances/cooling and heating methods</td>
<td></td>
</tr>
<tr>
<td>Sometimes forgot to check it</td>
<td></td>
</tr>
<tr>
<td>Should give noise alert if certain level of energy usage is reached</td>
<td></td>
</tr>
<tr>
<td>Never worked</td>
<td></td>
</tr>
<tr>
<td>Malfunctioned/support person came out without first scheduling a time with me</td>
<td></td>
</tr>
<tr>
<td>Malfunctioned often</td>
<td></td>
</tr>
<tr>
<td>Malfunctioned occasionally</td>
<td></td>
</tr>
<tr>
<td>Malfunctioned initially</td>
<td></td>
</tr>
<tr>
<td>Malfunctioned and no one has been available to fix it</td>
<td></td>
</tr>
<tr>
<td>It interfered with home computers</td>
<td></td>
</tr>
<tr>
<td>IHD usage numbers did not reflect actual usage</td>
<td></td>
</tr>
<tr>
<td>IHD did not always update towards end of month</td>
<td></td>
</tr>
<tr>
<td>Bill does not match up with IHD usage numbers</td>
<td></td>
</tr>
<tr>
<td>IHD could be a bit larger &amp; easier to read</td>
<td></td>
</tr>
<tr>
<td>How do we dispose of it?</td>
<td></td>
</tr>
<tr>
<td>Hard to understand some screens</td>
<td></td>
</tr>
<tr>
<td>Hard to understand initially, but customer support very helpful</td>
<td></td>
</tr>
<tr>
<td>Had to unplug to turn off</td>
<td></td>
</tr>
<tr>
<td>Had to keep it plugged in/back up battery weak</td>
<td></td>
</tr>
<tr>
<td>Had to be reset occasionally</td>
<td></td>
</tr>
<tr>
<td>Do not understand it</td>
<td></td>
</tr>
<tr>
<td>Device could be simplified</td>
<td></td>
</tr>
</tbody>
</table>

*Verbatim responses are summarized into the above buckets.
Figure E-18. How many Peak Time Rebate events were you aware of?

Figure E-19. Was the manner to communicate PTR events effective?
Figure E-20. Which of the following actions did you stop doing during a peak time event?

a. Clothes Washing

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>91%</td>
<td>9%</td>
</tr>
</tbody>
</table>

b. Clothes Drying

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>91%</td>
<td>9%</td>
</tr>
</tbody>
</table>
c. Dish Washing

![Chart showing 70% Yes and 30% No]

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>70%</td>
<td>30%</td>
</tr>
</tbody>
</table>

d. TV and Electronics

![Chart showing 74% Yes and 26% No]

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>74%</td>
<td>26%</td>
</tr>
</tbody>
</table>
e. Heating and Air

Figure E-21. Were the billing credits adequate compensation?

- Yes: 84%
- No: 16%
Figure E-22. Aware that the PTR rebate was twice the cost of a kWh?

![Bar Chart]

- Yes: 21%
- No: 79%
**Figure E-23. IHD: Do you have any additional comments on the IHD?**

*Verbatim responses are summarized into the above buckets*