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Sioux Valley Energy  
Colman, SD

## EmPOWER Critical Peak Pricing Pilot Assessment

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Contact: Richard J. Macke  
10710 Town Square Drive NE, Suite 201  
Minneapolis, MN 55449  
Office: 763-755-5122  
Mobile: 612-817-3462  
Fax: 763-755-7028  
Email: [macker@powersystem.org](mailto:macker@powersystem.org)  
Web Site: [www.powersystem.org](http://www.powersystem.org)

**Power System  
Engineering, Inc.**

Madison, WI · Minneapolis, MN · Marietta, OH  
Indianapolis, IN · Sioux Falls, SD · Cedar Rapids, IA



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# TABLE OF CONTENTS

<b>Executive Summary .....</b>	<b>i</b>
<b>1.0 Compilation of Pre-Pilot Survey Results .....</b>	<b>1</b>
1.1 Purpose and Results .....	1
1.2 Assessment.....	2
1.3 Lessons Learned.....	3
<b>2.0 Post-Pilot Survey .....</b>	<b>5</b>
2.1 Post-Pilot Survey .....	5
2.2 Compilation of Post-Pilot Survey Results .....	5
2.3 Assessment.....	6
2.4 Lessons Learned.....	8
<b>3.0 Prepare Bill Calculations and Rate Design Assessment.....</b>	<b>11</b>
3.1 Summary and Conclusions .....	11
3.2 Retail Rate Assessment.....	13
3.3 Wholesale Power Cost Assessment .....	14
3.4 Lessons Learned.....	16
<b>4.0 Demand Impact Evaluations.....</b>	<b>17</b>
4.1 Summary and Conclusions .....	17
4.2 Assessment and Lessons Learned.....	19
4.2.1 Fixed Effect Results.....	20
4.2.2 Random Effect Results .....	21

# TABLE OF CONTENTS

## TABLES

Table ES-1 - Savings Summary .....	iv
Table ES-2 - Average Demand Impact .....	v
Table 1-1 - Pre-Pilot Survey Response Rate.....	1
Table 2-1 - Survey Response Results .....	6
Table 2-2 - Notification Method Preferences .....	7
Table 2-3 - Behavior Modifications Motivation.....	8
Table 3-1 - Standard and Critical Peak Pricing Rates for Rate Classes.....	12
Table 3-2 - Summary of Retail Bill Impact Assessment .....	12
Table 3-3 - Comparison of Critical Peak Energy.....	14
Table 3-4 - Summary of Wholesale Power Savings per Participant.....	14
Table 3-5 - Net Revenue Effect per Participant.....	15
Table 4-1 - Average Impact Estimates from Fixed Effects Model.....	17
Table 4-2 - Percentage Program Impact Estimates by Rate Class and Test Group.....	18
Table 4-3 - Green Attitude Variable Values Across Groups .....	19
Table 4-4 - Average Impact Estimates from Fixed Effects Model.....	20
Table 4-5 - Average Impact Estimates from Fixed and Random Effects Models .....	22
Table 4-6 - Average Impact Assessment from Different Energy Use Drivers.....	23

## FIGURES

Figure 4-1 - Average Demand Impact by Hour for the Farm and Rural Residential Class.....	20
Figure 4-2 - Average Demand Impact by Hour for the Residential Service Class.....	21

## APPENDICES

Appendix A - EmPOWER Pre-Pilot Survey	
Appendix B - EmPOWER Pre-Pilot Survey Compilation Report	
Appendix C - EmPOWER Post-Pilot Survey	
Appendix D - EmPOWER Post-Pilot Survey Compilation Report	
Appendix E - Bill Impact Assessment - Combined Consumers	
Appendix F - Bill Impact Assessment - Technology Only Consumers	
Appendix G - Bill Impact Assessment - Control Group Consumers	

## **Executive Summary**

## Executive Summary

Sioux Valley Energy (SVE) is an electric distribution cooperative serving approximately 21,000 electric customers in Minnesota and South Dakota. In 2009, SVE won a Smart Grid Investment Grant which enabled it to complete the installation of a system-wide AMI system, including necessary backhaul equipment, communication systems, and approximately 29,000 smart meters.

From June 1, 2011 through August 31, 2011, SVE ran a Critical Peak Pricing (CPP) pilot. Power System Engineering, Inc.'s (PSE) Economic, Rates, and Business Planning group assisted SVE in the development, implementation, and assessment of its CPP pilot program. The goal of the CPP pilot was to explore dynamic pricing programs and smart grid technologies as a means of engaging customers and promoting conservation of electricity during peak times. For example, the energy rate during critical peak times was set to be about five times greater than the standard energy rate. As an offset, the energy rate during all non-critical peak times was able to be reduced.

PSE helped develop and select three test groups and one control group as follows:

1. Opt-Out: Randomly selected, with peak notification under CPP rate. Allowed to opt-out and billed under the lesser of the CPP rate or the standard rate.
2. Opt-In: Voluntary, with peak notification under CPP rate. Provided recruitment and thank you payment (contingent upon receiving completed pre- and post-pilot surveys).
3. Technology Only: Randomly selected with peak notification under standard rate.
4. Control: Randomly selected with no communications or rate treatments.

The multiple test groups allowed SVE to test multiple program designs in areas of behavior changes, participation rates, revenue and bill impacts, and technology readiness.

The test groups were notified of peak events the day ahead by means of one or more of the following technologies (chosen by the participant):

- Phone calls by using the IVR (Integrated Voice Response);
- Text messages;
- Twitter;

- Email and/or;
- In-home-displays/smart thermostats.

Extensive planning was undertaken to ensure a successful pilot. This included marketing, communications and educational materials, a pre-pilot survey, post-pilot survey, rate design, sample selection and stratification, technology testing, setting up of a dedicated phone and website, and significant work making sure various software systems were properly and reliably integrated.

This report summarizes PSE's assessment of the SVE 2011 CPP pilot in four areas:

- Pre-Pilot Survey;
- Post-Pilot Survey;
- Rate Design Assessment; and
- Demand Impact Evaluations.

PSE developed a pre-pilot survey that was distributed to the test group participants for the purpose of identifying certain demographic details and housing characteristics. This information was acquired in order to: 1) understand the participants and 2) identify, with econometric modeling, which demographics and characteristics are driving program responses. SVE achieved an overall 50 percent response rate. A near 100 percent response rate was achieved with the opt-in test group. This was made possible by requiring volunteer participants to return the completed survey in order to receive a "sign up" payment. The opt-out participants returned over 50 percent of their surveys even though the "thank you" payment was not made available to them. About 30 percent of the surveys were returned by the technology only participants.

The pre-pilot surveys were tabulated and compiled by PSE, and each question was summarized in table and graphical format. The following lists some of the key findings of the pre-pilot survey:

- For over 90 percent of participants, the primary residence is single family with the majority of these housing units being over 30 years old.
- Over 60 percent of the participants are age 41 and older.

- Approximately 50 percent use social networking and 80 percent have internet.
- The primary heating source is 50 percent gas, 40 percent electric.
- 75 percent have central air conditioning (A/C).
- 85 percent have electric water heaters.
- 80 percent have at least 1 compact fluorescent light (CFL).
- 50 percent believe climate change is a serious long-term concern.
- 90 percent believe foreign oil dependency is a long-term concern.
- 40 percent are willing to pay more for “green” energy.
- The most relied upon source for energy efficiency information is manufacturers and retailers.

SVE and PSE also developed a post-pilot survey which was sent to participants following the completion of the pilot. The purpose of the post-pilot survey was to acquire feedback regarding: 1) satisfaction with the program in various areas, 2) what actions participants undertook to reduce consumption during a critical peak event (including investments in equipment), and 3) guidance on future program design.

Approximately 85 percent of the post-pilot surveys were returned by the opt-in participants. The opt-out participants returned approximately 46 percent of their surveys, and the technology only participants returned approximately 26 percent. The overall satisfaction level as indicated by the post-pilot surveys was high with 90 percent responding that they would consider continuing in the program. In addition, over 90 percent of the participants indicated that they modified their behavior at least somewhat in order to help SVE save money. The most unsatisfactory component of the pilot was uncertainty on the part of the participants about whether or to what extent they saved on their bills or were successful in reducing usage during peak times. This is important information to communicate, although it is currently difficult for SVE to provide this to participants on a timely, especially monthly, basis.

The CPP rate design was assessed in order to: 1) determine the potential retail bill impact on the participants, 2) assess the design of the CPP rate, and 3) evaluate and compare with SVE wholesale power cost savings.



## Executive Summary

On average, the CPP rate would have resulted in a bill decrease had the technology only and control group participants been billed at the CPP rate. While the CPP rate was designed to be revenue neutral to the control group, PSE has determined that a rate decrease would have resulted primarily because fewer CPP events were called by SVE than were designed into the CPP rate. As a result, there would have been less CPP energy billed. There is risk associated with predicting the amount of critical peak consumption associated with unpredictable variables such as weather.

There is justification for reduced revenue or participant retail billings if SVE experienced an offsetting reduction in wholesale power costs. This is, after all, a basic underpinning of the CPP program; i.e. to provide a financial incentive for participants based upon net savings to SVE. PSE finds that the retail savings for the participants often exceeded the wholesale power cost savings, resulting in a net loss to SVE. The two main causes for this are: 1) there were fewer CPP events than expected which resulted in greater retail bill savings than expected and 2) there was one wholesale billing peak period that was not notified which reduced the wholesale power cost savings. The results for the Residential group were better than for the Farm and Rural Residential group, likely because the limited substation data used in the design of the CPP rate better represented the Residential group.

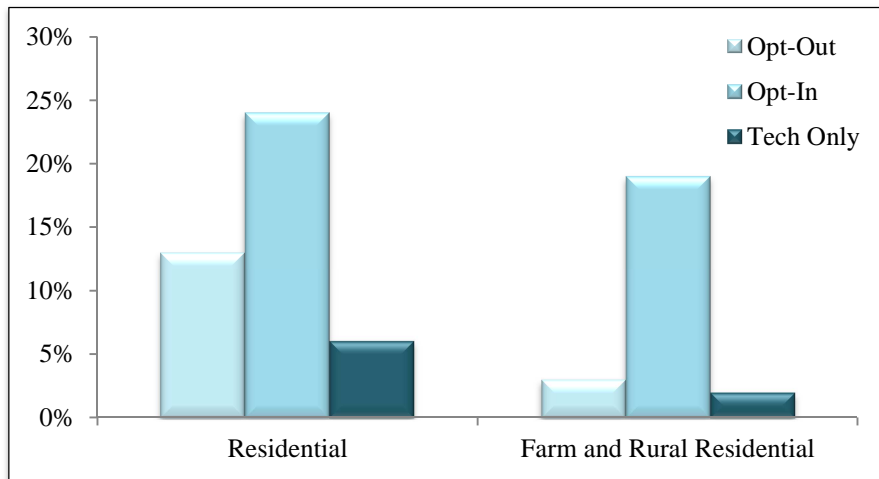
Table ES-1 below compares the retail bill savings and wholesale power cost savings on a per participant per month basis.

**Table ES-1 - Savings Summary**

Monthly Savings per Participant				
Farm/Res.	Retail	Wholesale	Net	
Opt-Out	\$ (24.05)	\$ (2.48)	\$	21.58
Opt-In	\$ (22.27)	\$ (18.12)	\$	4.15
Tech Only	\$ (11.94)	\$ (2.13)	\$	9.81
<b>Total</b>	<b>\$ (18.55)</b>	<b>\$ (4.12)</b>	<b>\$</b>	<b>14.43</b>
Residential	Retail	Wholesale	Net	
Opt-Out	\$ (7.13)	\$ (6.43)	\$	0.70
Opt-In	\$ (12.28)	\$ (11.96)	\$	0.32
Tech Only	\$ (3.12)	\$ (3.60)	\$	(0.48)
<b>Total</b>	<b>\$ (6.14)</b>	<b>\$ (6.00)</b>	<b>\$</b>	<b>0.13</b>

PSE’s econometric assessment of the pilot demonstrates that participants in all three test groups reduced usage during notified peak events. One major factor affecting the magnitude of reductions is the participants’ attitude. Participants determined by the pre-pilot survey responses to be relatively more “green” tended to reduce consumption most. As shown in Table ES-2 below, these are also the characteristics of the opt-in group that show the most substantial demand reductions.

**Table ES-2 - Average Demand Impact**



## **1.0 Compilation of Pre-Pilot Survey Results**

## 1.0 Compilation of Pre-Pilot Survey Results

### 1.1 Purpose and Results

The purpose of the pre-pilot survey was to identify certain demographic details and housing characteristics of program participants in order to: 1) understand the participants and 2) identify, with econometric modeling, which demographics and characteristics are driving program responses. This will provide valuable information on strengths and weaknesses as they relate to program improvement strategies, as well as provide insights into how this program may be best focused or targeted in a potential system-wide rollout. See the EmPOWER Pre-Pilot Survey in Appendix A.

Prior to the start of the pilot, a pre-pilot survey was sent to the participants. Of the 646 surveys sent, a total of 323 surveys were completed and returned for a response rate of 50 percent. The following Table 1-1 shows the results for each test group. Each survey question was compiled in table and graphical form and included in the attached Appendix B.

**Table 1-1 - Pre-Pilot Survey Response Rate**

Rate Class	Test Group	Surveys Sent	Surveys Returned	Response Rate
Residential	Opt-Out	110	55	50%
	Opt-In	34	32	94%
	Tech Only	110	34	31%
	Control	0	0	0
Farm and Rural Residential	Opt-Out	175	95	54%
	Opt-In	42	42	100%
	Tech Only	175	55	31%
	Control	0	0	0
Unspecified			10	
Total		646	323	50%

The response rate in total was very strong and was particularly strong for the opt-in test group. That was expected because a “sign up” and “thank you” payment, as part of the recruitment strategy, was made contingent upon receiving the completed surveys. However, even for the opt-out test group, a robust 50 percent plus response rate was achieved.

## **1.2 Assessment**

The results of the survey indicate that the vast majority (over 90 percent) of respondents live in single-family homes that they own, most often with two occupants. The majority of these homes are over 30 years old. The typical age group is between 41 and 64 years of age. Interestingly, over 50 percent use social networking and over 80 percent have broadband internet service in their home.

The primary heating source reported by the respondents is 50 percent gas and 40 percent electric. Over half of those heating units are less than 10 years old. Nearly three-fourths have central air conditioning (AC), and 45 percent of those units are less than 10 years old. Eighty-five percent use electric water heaters, and 65 percent of those are less than 10 years old. Almost 80 percent of those who answered the survey have at least one Compact Fluorescent Light (CFL).

Of the respondents that have an opinion:

- 49 percent indicated that global warming/global climate change is a serious long-term threat.
- 89 percent indicated that our dependence on foreign energy sources is a serious long-term threat.
- Only 39 percent are agreeable to paying more for green power.

More respondents trust the appliance manufacturers/retailers to give them dependable information on how to optimize their energy usage than other sources such as academics, governmental or online sources, daily newspapers, or the nightly news. The majority regularly pay attention to energy-related issues because those issues affect them directly and feel that everyone should make a real effort to conserve energy. However, they are not quite convinced that paying more should be used as an incentive to conserve more. The majority have sought ways to use less energy because they want to do what they can to protect the environment (87 percent) and to reduce their bill (92 percent).

### **1.3 Lessons Learned**

At least 30 percent of the surveys were returned from each test group. This is a very successful response rate and speaks to the participants' interest in the pilot and trust in SVE.

In compiling the results of the surveys, any questions that were inappropriately marked with multiple answers were added to those that were left blank and recorded as a No Answer. It may be helpful to be able to include the multiple answers rather than throwing them out. This, however, would increase the number of responses above the number of surveys returned.

One of the questions with the highest rate of No Answer, because it was left blank, was Question No. 11 that dealt with income levels. It is expected that because of privacy issues, some respondents declined from answering. However, there were enough responses to adequately reflect the income levels of the survey samples.

There needs to be some clarification of how to answer questions such as No. 17 regarding the use of a secondary heating system when the respondents answered that they did not have a secondary heating system on the previous Question No. 16. Possibly having a N/A option would help. A similar issue exists with Questions Nos. 19, 20a, and 28 regarding central AC. Question No. 26, asking how many of each type of appliance the respondents had, resulted in varying numbers of No Answers because it had been left blank. It could be assumed this was because the respondents did not have such an appliance; but for this report, it was considered a No Answer.

Up to 10 percent of the respondents failed to respond to the optional Question No. 31 regarding their opinion on various current energy topics. In order to make the analysis of each statement more effective, it would be better to not include the No Answer responses in the calculation of the percentage. For instance, of those who answered, 89 percent agreed, either somewhat or strongly, that our dependence on foreign sources for energy is a long-term threat.

It would be beneficial to include electric cooperatives or the utility industry in general as a source of dependable information on how to optimize their energy usage. This would provide information that indicates memberships' trust in the cooperative versus other sources or an

indication of whether the cooperative is doing an adequate job of positioning itself as a reliable and trusted source/advisor. Another option would be to have the respondents rank order the choices.

SVE should consider providing an option for participants to access and complete the survey online in addition to paper format. It is not recommended that such be the only option as some people would prefer a paper format and/or do not have computer or internet access.

## **2.0 Post-Pilot Survey**



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## 2.0 Post-Pilot Survey

### 2.1 Post-Pilot Survey

SVE and PSE developed a post-pilot survey for the participants following the completion of the pilot in August 2011. The purpose of the post-pilot survey was to allow the participants of the program to provide SVE with feedback in order to: 1) measure the satisfaction with the program by those who participated, 2) measure the participants' satisfaction with the notification process, 3) understand how the participants modified behavior during a peak event, and 4) provide input on future program designs. The survey asked questions regarding appliance use immediately before and during critical peak events, event notification procedures, and motivations for behavioral modifications. See EmPOWER Post-Pilot Survey in Appendix C.

### 2.2 Compilation of Post-Pilot Survey Results

After completion of the pilot in September 2011, SVE sent a post-pilot survey to selected participants. As part of PSE's assessment of the pilot, we compiled the results of these surveys, including a graphical representation of each question, in a report which is included in Appendix D. These results provide valuable information on strengths and weaknesses as they relate to program improvement strategies, as well as provide insights into how this program may be best focused or targeted in a potential system-wide rollout.

Of the 596 surveys sent, a total of 272 surveys were completed and returned. Of this, 255 could be identified to a test group. The following Table 2-1 shows the response rates for each test group.

**Table 2-1 - Survey Response Results**

Sample	Test Group	Surveys Sent	Surveys Returned	Response Rates
Residential	Opt-out	98	45	46%
	Opt-in	34	28	82%
	Tech Only	96	26	27%
	Control	0	0	0
Farm and Rural Residential	Opt-out	165	77	47%
	Opt-in	42	37	88%
	Tech Only	161	41	25%
	Control	0	0	0
Unspecified			17	
Total		596	272	46%

The highest rate of surveys returned was from the opt-in test group as 82 percent were returned by Residential and 88 percent from Farm and Rural Residential participants. At least a quarter of the surveys were returned from each test group.

### 2.3 Assessment

The Post-Pilot Survey focused on two broad areas: 1) behavior modification and 2) program satisfaction. It is important to keep in mind that, in the area of behavior modification, the results are self reported by the participants. While this is imprecise and subject to reporting bias or error, it is yet informative to more fully understand the success of the program. Below are some of the more interesting observations from the compilation of the results in regards to behavior modification:

- Over 60 percent reported significantly modifying laundry and dishwashing activities, which was the number one response.
- 30 percent reported somewhat and 30 percent reported significantly modifying their hot water usage.
- In anticipation of peak events, it appears that close to 50 percent of the respondents pre-cooled their homes at least some of the time.
- Over 60 percent changed cooking times or grilled rather than using the stove.
- Over 80 percent avoided doing laundry during a peak event.

Participants were also asked questions about whether their participation in the pilot prompted installations of energy efficiency equipment. The responses, as might be expected, show a correlation between installations of energy efficiency related equipment and cost. For example, question No. 6 indicates that, with 60 “Yes” answers, CFLs were most often chosen to be installed as a result of the program. There were 40 reported installations of in-home-display (IHD) devices, 38 reported installations of energy efficient appliances, and 36 reported installations of programmable thermostats. Question No. 7 asked a similar question about what installations would be made in anticipation of staying in the program, and respondents indicated a similar pattern or ratio of installations.

The second area addressed in the survey was the participants’ satisfaction with the program. Questions were developed to assess such things as: the manner in which the program was conducted, perceived results, and anticipated participation in the program in the future. Nearly three-fourths of the respondents reported that they never forgot a peak (peak events were notified by 4:00 p.m. the day prior). The majority of participants were notified by telephone of an upcoming event which was the most preferred means of receiving notification. Table 2-2 shows how the participants reported they were notified along with how many preferred what method.

**Table 2-2 - Notification Method Preferences**

Form of Notification	How	Preferred
Email	93	62
In Home Display	55	37
Text Messages	93	81
Phone Call	162	110

It should be pointed out that participants were allowed to be notified by more than one means at their election in the enrollment materials. Notifications the day before the peak event were the strongest preference with one hour advance notification being the least preferred, which supports the program design which committed to notification by 4:00 p.m. the day prior to the event.

The survey results indicate a strong relationship with SVE and satisfaction with the program by those who responded to the survey. There was almost no inconvenience, discomfort, or dissatisfaction reported. Over 90 percent of respondents indicated that they modified their behavior in order to save SVE money at least somewhat. Table 2-3 shows that the strongest motivation for behavior modification was lowering their bill, although the environmental impact was also high.

**Table 2-3 - Behavior Modifications Motivation**

Motivation	Not at all	Somewhat	Extremely
Lower my electric bill	15	61	111
Environmental impact	31	99	56
Help my coop save money	18	86	68

## 2.4 Lessons Learned

The program's success may be gauged by the fact that 90 percent of the respondents would consider continuing in the program, and over 50 percent are highly likely to continue. In Question No. 9, nearly 50 percent reported that they would highly recommend participation in the program to others. Approximately 98 percent of the respondents were at least somewhat satisfied with the overall program, with about 38 percent indicating Major satisfaction and less than 1 percent answering none.

The program design was successful according to those participants who responded to the post-pilot survey. Survey Question No. 13 (parts a-d) indicates that on key issues of the price signal and notification, there were very few participants that recommended changes to the program. The price, notification means, and notification timing is supported by the respondents; and there is not a compelling reason to make any drastic changes to these aspects of the program. There could be some minor revisions such as comments suggesting a reminder of one hour before the peak event.

From answers to Questions Nos. 14 and 18 and comments made to Question No. 19, the participants seem unsure about how their participation affected their utility bills. Below are some example comments:

- 45. \$50 svgs hardly seems worth all the fuss. Next to no svgs during highest pk event no svgs best I can determine.
- 46. My bill was approximately the same, but your note on the bill said there was a significant savings. We have no way of knowing if we don't understand what comparison you are using.
- 68. It is difficult to assess any cost of energy saving esp. with the variable rates. Overall, our energy bills were significantly higher this year over past years. We have been unable to access "empower" program online - there seems to be a technical glitch. It would be nice to see visually when + how much electricity we are using then we can modify our usage.
- 96. It would be nice to get an actual comparison of our bill + usage this year compared to 2010 so we could see how the program affected us.

Communications with participants throughout and after the program is certainly important. We expect that as SVE, National Information Solutions Cooperative (NISC), and even PSE gain experience and begin standardizing processes, the ability to communicate with shorter turnaround will vastly improve.

Logistically, this survey differs from the pre-pilot survey in that only the middle and extreme responses are labeled. Therefore, we cannot in good faith assign labels to the "2" and "4" responses, since we cannot assign the thoughts of the participants. Therefore, the responses were compiled with just responses 1, 3, and 5 included with their respective response. It is recommended to label all five options or only include responses with labels. For instance, Question No. 9 asks if the respondents would recommend this type of program to others. The options for response were: I would recommend against, Undecided, and I would highly recommend. Nearly 50 percent responded Undecided. Does this mean that they would not recommend the program or that they are just not highly recommending it? The response options

could be clearer, with possibly a Not Recommended and a Recommend response in place of or in addition to the Undecided.

As with the pre-pilot survey, SVE had strong response rates and acquired valuable feedback from the participants to help understand: 1) the measure of satisfaction with the program by those who participated, 2) measure the participants' satisfaction with the notification process, 3) understand how the participants modified behavior during a peak event, and 4) provide input on future program design.

**3.0 Prepare Bill Calculations  
and Rate Design Assessment**

## 3.0 Prepare Bill Calculations and Rate Design Assessment

### 3.1 Summary and Conclusions

The third task performed by PSE to assist SVE in the analysis of its CPP pilot was to prepare bill calculations and assess the CPP rate design. The purpose of the assessment was to: 1) determine the potential bill impact on individual consumers and 2) assess the design of the CPP rate.

To complete this task, consumer load data for the various energy charge billing determinants (i.e., off-peak, on-peak, critical peak) was compiled by month for the summer billing season of each participant of the Technology Only and Control test groups.<sup>1</sup> Neither the Technology Only and Control test groups were subjected to the CPP rate design, but rather they remained on the standard or default rate design. An analysis was conducted to determine what the bill impact would have been if the CPP rate had been applied to these members. This was determined by applying the billing determinants to both the applicable standard rate and the CPP rate within both the Farm and Rural Residential (FRR) or Residential (Res) Service categories. Table 3-1 below identifies the rates used in the assessment:

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<sup>1</sup> The rate assessment was limited to the Technology Only and Control test groups since actual bill comparisons were available from the billing system for the opt-out and opt-in test groups.



**Table 3-1 - Standard and Critical Peak Pricing Rates for Rate Classes**

<b>Farm and Rural Residential Rates</b>			
	Standard		CPP
<b>Service Charge</b>			
Single Phase	\$	30.00/mo.	\$ 30.00 /mo.
Multi-Phase	\$	60.00/mo.	\$ 60.00/mo.
<b>Energy Charge</b>			
First 500 kWh	\$	0.1038/kWh	\$ 0.0781/kWh
Next 1,000 kWh	\$	0.0915/kWh	\$ 0.0689/kWh
Excess kWh	\$	0.0746 /kWh	\$ 0.0562/kWh
Critical Peak kWh		N.A.	\$ 0.5000/kWh
<b>Residential Rates</b>			
	Standard		CPP
Single Phase	\$	13.50 /mo.	\$ 13.50 /mo.
First 500 kWh	\$	0.0915/kWh	\$ 0.0689/kWh
Excess kWh	\$	0.0746/kWh	\$ 0.0562/kWh
Critical Peak kWh		N.A.	\$ 0.5000/kWh

Table 3-2 summarizes the assessment of the retail bill impact.

**Table 3-2 - Summary of Retail Bill Impact Assessment**

	FRR		Res	
	Tech Only	Control	Tech Only	Control
Count	483	528	295	294
Increases	30	58	80	101
Decreases	453	470	215	193
<b>Average Monthly Bill</b>				
Standard Rate	\$ 155.28	\$ 159.80	\$ 73.99	\$ 73.90
CPP Rate	\$ 143.12	\$ 148.86	\$ 70.75	\$ 71.62
Ave Monthly Impact	\$ (12.16)	\$ (10.94)	\$ (3.23)	\$ (2.28)
As Percent	-7.8%	-6.8%	-4.4%	-3.1%

On average, the CPP rate would have resulted in a net bill decrease had the Technology Only and Control group participants been billed at the CPP rate. The Technology Only participants would have experienced a greater decrease; i.e., -7.8 percent versus -6.8 percent for FRR members and -4.4 percent versus -3.1 percent for Res members. This is due to one or a combination of the following: 1) pre-existing consumption profile and/or 2) consumption profile changes due to

peak notification. Section 4.0 of our assessment confirms that the Technology Only participants did reduce usage during peak events so as to confirm this as a reason for the above results.

Attached are Appendices that include the bill impact assessment by account grouped as follows:

- Appendix E - Bill Impact Assessment - Combined Consumers;
- Appendix F - Bill Impact Assessment - Technology Only Consumers; and
- Appendix G - Bill Impact Assessment - Control Group Consumers.

### **3.2 Retail Rate Assessment**

The experimental CPP rate if applied to the Technology and Control groups would have resulted in a revenue decrease to SVE. Within the Control group<sup>2</sup>, applying the CPP rate would have reduced SVE revenue from the FRR consumers in aggregate by \$17,329 or 6.8 percent. From the Res consumers, the revenue reduction would have been \$2,011 or 3.1 percent in aggregate. Because these consumers did not receive any peak notification or information, the design basis would be for the CPP rate to be revenue neutral to the Control group.

On the surface, the experimental CPP rate would appear to have been underpriced. However, the results are primarily due to the number of critical peak events called during the 2011 pilot versus the design basis. During the 2011 pilot, there were a total of 52 critical peak hours over 13 critical peak events. From the control group, approximately 3.27 percent and 4.03 percent of the total energy consumption would be classified as critical peak energy under the FRR and Res CPP rates, respectively. The CPP rate was designed assuming more energy would be billed during critical peak events. A comparison of the CPP design versus observed critical peak energy is summarized by rate class in the following Table 3-3. This difference is due primarily to weather, and it illustrates the risk and sensitivity associated with the CPP rate design and assumptions.

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<sup>2</sup> The focus of the assessment must be on the Control group, since any revenue reduction from the Technology Only group may be expected and perhaps acceptable as there could be related reductions in purchased power expense.

**Table 3-3 - Comparison of Critical Peak Energy**

	FRR		Res	
	CPP Design	Actual Observed	CPP Design	Actual Observed
Average Monthly kWh	1,312	1,764	938	1,086
Critical Peak kWh	72	58	51	44
Critical Peak Pct.	5.49%	3.27%	5.44%	4.03%

### 3.3 Wholesale Power Cost Assessment

Quantifying the wholesale power cost savings via reduced peak demand charges is an important aspect of the effectiveness of the CPP rate design. Effective CPP design will align the savings between program participants and SVE.

PSE performed an analysis to determine the reduction in demand at the time of the East River Electric Power Cooperative, Inc. (East River) and L & O Power Cooperative (L & O) coincident demand billing peaks, adjusted for line loss. To this we applied the East River or L & O current wholesale demand rate.<sup>3</sup> On average, participants reduced demand by .43 kW per month in the Res class and .33 kW in the FRR class during the power supplier coincident demand billing peaks. It is important to note that one of the three coincident demand billing peaks was “missed” due to not being able to provide day ahead notification. Table 3-4 summarizes the determined wholesale power cost savings per participant.

**Table 3-4 - Summary of Wholesale Power Cost Savings per Participant**

Test Group	Total	
	FRR	Res
Opt-out	\$(2.48)	\$(6.43)
Opt-in	\$(18.12)	\$(11.96)
Tech Only	\$(2.13)	\$(3.60)
Total	\$(4.12)	\$(6.00)

<sup>3</sup> It is important to note that, while SVE’s avoided wholesale power costs are based upon its power suppliers’ current wholesale rates, such does not likely represent the “true” avoided cost of power supply. This is because wholesale rates of G&Ts are developed to collect the utility’s embedded costs, and the rate structure employed may or may not provide a proper price signal as do the avoided costs, either short-run or long-run, from the perspective of the power supplier(s).

To get the full picture of the net impact on SVE, the reductions in retail bills are compared against SVE’s wholesale power savings. A goal of the CPP rate should be to avoid giving bill reductions to consumers that exceed the benefits received via reduced wholesale power costs. Otherwise, while the participants may benefit, SVE and the non-participant members are disadvantaged. The results of this evaluation can be found in Table 3-5 below.

**Table 3-5 - Net Revenue Effect per Participant**

Farm and Rural Residential	Retail	Wholesale	Net
Opt-out	\$(24.05)	\$(2.48)	\$21.58
Opt-in	\$(22.27)	\$(18.12)	\$4.15
Tech Only	\$(11.94)	\$(2.13)	\$9.81
Total	\$(18.55)	\$(4.12)	\$14.43
Residential	Retail	Wholesale	Net
Opt-out	\$(7.13)	\$(6.43)	\$0.70
Opt-in	\$(12.28)	\$(11.96)	\$0.32
Tech Only	\$(3.12)	\$(3.60)	\$(0.48)
Total	\$(6.14)	\$(6.00)	\$0.13

The results for the FRR group are of particular interest and may require further investigation. PSE would speculate that the factors driving the negative net impact for this group includes:

1. Presence of non-residential loads such as farms which may not be as able to change consumption patterns.
2. Due to data limitations, the CPP rate was designed using hourly substation load data determined as being predominantly used to service residential consumers. The result is that the expectations for critical peak event consumption may not have been appropriate to apply to the FRR group.
3. One wholesale coincident demand billing peak was “missed” as it was not notified by 4:00 p.m. the day prior.

The results for the Res group are much closer to what would be acceptable and expected. While there was still some negative net savings, it is likely this resulted from overly “generous” retail bill savings related to the few critical peak events that were notified. In addition and as noted above, one of the three coincident billing peaks was missed as day ahead notification was not communicated to the participants.

### **3.4 Lessons Learned**

Overall, the design of critical peak rate was satisfactory. The rate performed as expected, although a few key findings did emerge. First, it would be beneficial, now that hourly meter data is available at least in part, to utilize such in the design of the CPP rate rather than the hourly substation load data that was previously relied upon. This will help in the design of the FRR CPP rate in particular and may cause a distinction to be made between that rate and the Res CPP rate.

There are many rate modification options that could be considered in an attempt to design the CPP rates to be more revenue neutral. Focusing on the critical peak component, an adjustment could be made either to the volume or price. For example, SVE could increase the number, duration, or both of the critical events. Alternatively, the rate charged for critical peak energy could be increased. Using the control group load data, the breakeven critical peak Energy Charge would be \$0.6899 per kWh versus the \$0.500 per kWh charge that was evaluated. We would suggest that future pilots consider setting a minimum number of hours or a fixed number of hours upon which to: 1) design the CPP rate and 2) operate the program from a notification perspective.

The importance of being able to predict peak events is very important to producing wholesale power cost savings to SVE. In this regard, close coordination with the power supplier would be ideal. Some power suppliers have implemented a wholesale CPP rate program which allows for close coordination of peak event notification and billing. Short of this, SVE will need to continue doing the best job it can of developing short-term forecasts, etc., to predict peak events.

Related, the evaluation of wholesale power cost savings should consider not only the power bill savings to SVE but also the avoided costs as determined by Basin Electric Power Cooperative (Basin) and/or within a market construct; i.e. MISO. It is unclear or uncertain to what extent peak reductions achieved by the CPP pilot produced net savings further up the supply chain from SVE. This type of assessment is important, however, to the prospect of a larger deployment within SVE, East River, etc.

## **4.0 Demand Impact Evaluations**

## 4.0 Demand Impact Evaluations

### 4.1 Summary and Conclusions

SVE and PSE worked together to plan and complete SVE’s 2011 pilot. One of the main goals of the pilot was to determine whether it would be prudent for SVE to offer a CPP rate to all of its members and, if so, how best to accomplish this. Towards this end, PSE set out to evaluate two main aspects of the pilot. First, PSE sought to ascertain the average demand impact of CPP pricing on each test group. PSE used a statistical model known as “fixed effects,” which is discussed further in Section 4.2, for this purpose. In general, fixed effects modeling is a powerful tool that permits us to discern the effect of CPP pricing on power consumption when we have data from multiple accounts and time periods.

Second, PSE wanted to determine some of the main reasons for the different reactions to CPP pricing among individual members. Findings from this step will help SVE to maximize its recruitment efforts if it wants to expand this program to other member households. In order to test the variation in response among the member households at this step of the analysis, PSE used a “random effects” model. The strength of the random effects model was that it allowed us to test how strongly different appliances or attitudes towards energy conservation affect responses to the program’s CPP price signal. One of the key inputs in this model was the responses from the enrollment survey detailed in Section 1.0. The results from this model highlighted household characteristics that drove members’ reduction in power usage. SVE should take these findings into account as it recruits members for future programs.

The results from the fixed-effects models are provided in the following Table 4-1. These show the average demand impacts during critical peak periods.

**Table 4-1 - Average Impact Estimates from Fixed Effects Model**

Test Group Type	FRR CPP Demand Impact	RES CPP Demand Impact
Opt-out	-0.17	-0.41
Opt-in	-1.28	-0.85
Tech Only	-0.13	-0.21

The results from the fixed effects model indicated that members who are in the opt-in group had the highest level of reduction during the critical peak periods. Of the two rate classes within the opt-in group, those in the FRR rate class had the highest reduction in absolute usage compared to those in the Res rate class. The opt-in test group in the FRR rate class reduced its demand by an average of 1.28 kW during the critical peak hours. In percentage terms, the Res opt-in group's reduction was greatest at 24 percent as demonstrated in Table 4-2 below.

**Table 4-2 - Percentage Program Impact Estimates by Rate Class and Test Group**

Test Group	Baseline kW	kW Impact	% Impact
<b>Farm and Rural Residential</b>			
Opt-in	5.71	-0.17	-3%
Opt-out	6.82	-1.28	-19%
Tech Only	5.20	-0.13	-2%
<b>Residential Services</b>			
Opt-in	3.07	-0.41	-13%
Opt-out	3.51	-0.85	-24%
Tech Only	3.33	-0.21	-6%

PSE tested separate random effects models to explain the differences in usage patterns among the test groups and rate classes. Included among the main characteristics that PSE tested at this stage were ownership of AC units, “green attitudes,” and other household attributes. In general, we found that the higher a member's green attitude, the larger the impact on energy reduction regardless of other household characteristics. Green attitudes, and not electric appliance presence, are the greatest driver of reductions in household energy use during critical peak events. This was an important finding, because it indicated that marketing this type of rate program correctly would lead to increased savings by simply targeting those people with high green attitudes. We constructed the green attitude variable using the enrollment survey responses from test group participants. PSE compiled the survey responses and examined each respondent's answers to 10 questions that dealt with environmental concerns. We computed a weighted sum of each of the 10 responses to create a composite green attitude variable. The following Table 4-3 presents summary statistics of the values of this variable by rate class and test group.



**Table 4-3 - Green Attitude Variable Values Across Groups**

		FRR Class	RES Class
Opt-out	<b>Average</b>	<b>0.67</b>	<b>0.71</b>
	Min	0.04	0.48
	Max	0.95	0.98
Opt-in	<b>Average</b>	<b>0.70</b>	<b>0.79</b>
	Min	0.46	0.54
	Max	0.89	0.96
Tech Only	<b>Average</b>	<b>0.68</b>	<b>0.79</b>
	Min	0.10	0.58
	Max	0.86	0.99

PSE’s general conclusion is that SVE’s CPP program does significantly alter energy usage behavior during critical peak events. The opt-in groups curtail use the most, likely due to the self-selection bias of “green” people volunteering for the program. Other test groups also had significant reductions during critical peak hours.

We found a significant correlation between demand reduction and green attitudes. This held in all models except the opt-in test group, which already exhibited bias towards green attitudes. There also appeared to be further reductions from some households with AC units, especially if combined with an above-average green attitude.

## 4.2 Assessment and Lessons Learned

As described above, PSE first estimated a fixed effects model, which included two measures of weather, to test differences in energy usage among the pilot test groups. A fixed effects model is an econometric method used to capture all household-specific effects on energy consumption. We used this approach to isolate the average event impact on demand in each group by controlling for household-specific characteristics that influence energy consumption.

The fixed effects model, however, had some disadvantages. One of the most notable was that it prevented the inclusion of variables that do not vary with time. This limited the researcher’s ability to identify variables which influence program impacts to only those variables where data

is available and varies over time for each household. For example, an education variable that does not vary could not be included in the fixed effects model.

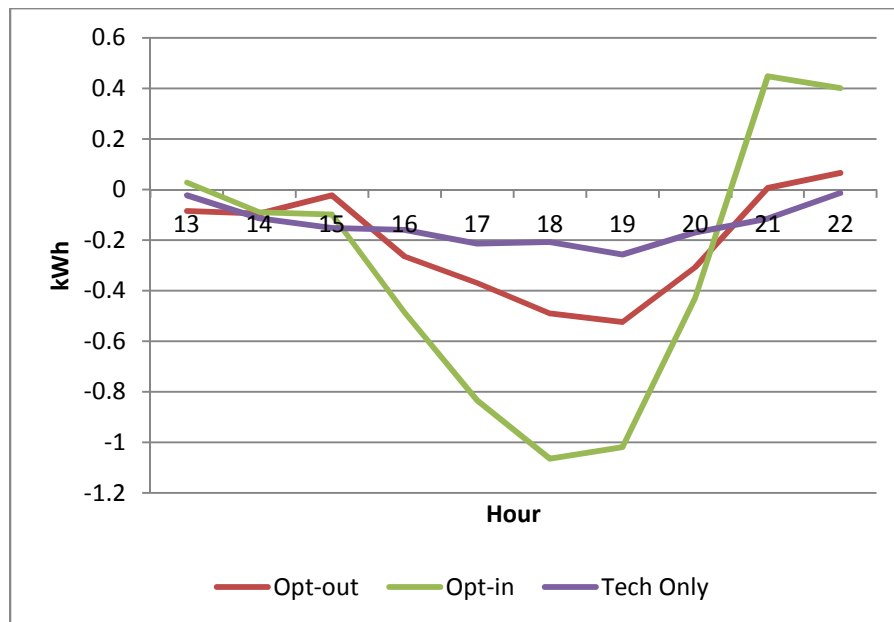
**4.2.1 Fixed Effect Results**

Given the results derived from the fixed effect estimation, the large sample size, and the randomness of sample selection, PSE concluded that there were tangible energy savings resulting from this program across all test groups. The estimated energy use reductions held up across different modeling approaches. Estimated demand savings ranged from 1.28 to 0.13 kW during critical peak hours. The results for each rate class and test group are provided in Table 4-4.

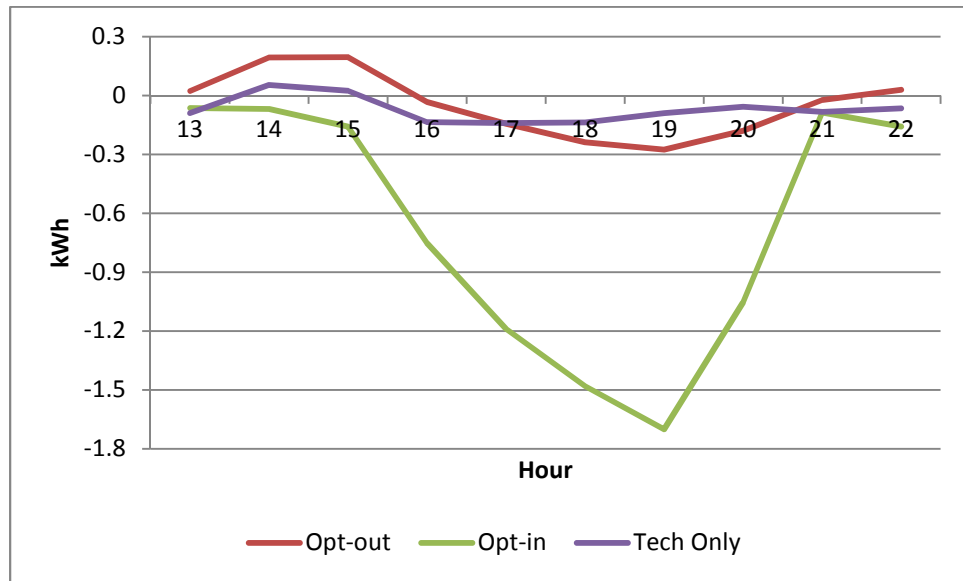
**Table 4-4 - Average Impact Estimates from Fixed Effects Model**

Test Group Type	FRR CPP Demand Impact	RES CPP Demand Impact
Opt-out	-0.17	-0.41
Opt-in	-1.28	-0.85
Tech Only	-0.13	-0.21

The following Figures 4.1 and 4.2 present the average demand impacts by hour for each rate class and test group. Note, the four critical peak hours begin with Hour 16 and end at Hour 19.



**Figure 4-1 - Average Demand Impact by Hour for the Farm and Rural Residential Class**



**Figure 4-2 - Average Demand Impact by Hour for the Residential Service Class**

#### 4.2.2 Random Effect Results

SVE also wanted to explore the household characteristic causes for different energy reduction amounts during events among members. SVE had the foresight to survey members who participated in the program. Those survey results provided valuable insight into household characteristics that affect usage. The summary of this survey can be found in Section 1.0. In addition to the simple benefit of better understanding each test group by analyzing the survey itself, its real power came from using it to create variables for a random effects model. The main goal of a random effects model is to capture differences in energy usage among members due to individual household attributes. The random effects model allowed PSE to test how strongly different appliances or attitudes towards energy conservation caused participants to react differently to the CPP price signal of the program.

Electricity use is influenced by different appliances and attitudes in consumer households. While this could potentially permit the testing of numerous models, our preliminary findings indicated AC and green attitude contributed most to changes in behavior during event hours. Hence, PSE focused its research on those drivers of event period usage. In particular, we estimated models that indicated the extent to which

households with AC and different attitudes towards conservation, as captured by the composite green attitude variable, altered their energy consumption during critical peak periods. The summary of the combination of AC with green attitudes results is presented in Table 4.5.

**Table 4-5 - Average Impact Estimates from Fixed and Random Effects Models**

Model Type	Farm and Rural Residential			Residential Service		
	Opt-out	Opt-in	Tech Only	Opt-out	Opt-in	Tech Only
FE Model	-0.17	-1.28	-0.13	-0.41	-0.85	-0.21
Random Effects Model						
Average Green with AC	-0.08	-1.06	-0.17	-0.35	-1.29	-0.20
Minimum Green with AC	0.47	-0.98	0.36	-0.30	-1.42	0.22
Maximum Green with AC	-0.32	-1.13	-0.33	-0.41	-1.20	-0.59
<b>Difference in Max to Min Green</b>	<b>-0.79</b>	<b>-0.15</b>	<b>-0.69</b>	<b>-0.11</b>	<b>0.22</b>	<b>-0.81</b>

The following Table 4-6 shows how the demand impact changed over different levels of green attitudes when the household had an AC unit available. Across all programs, the maximum green household is expected to reduce demand by 0.39 kW more than a household with the minimum green attitude; this value is the average of the difference between maximum green with AC demand impact and minimum green with AC demand impact. The only program where this result did not hold up was for the residential opt-in group. This group was already comprised of “green” people who volunteered for the program.

Further, we broke down the sources of savings into the drivers of energy usage by rate class and test group. These results are presented in a qualitative form in Table 4-6.

**Table 4-6 - Average Impact Assessment from Different Energy Use Drivers**

		Farm and Rural Residential	Residential Service
Opt-out	AC	AC use increases during event, and higher before and after the event	AC use the same as non-event day, but use higher before and after the event
	Green Attitude	Green attitude reduces use significantly during event	Green attitude reduces use slightly during event
Opt-in	AC	AC use the same as non-event day, but use higher before and after the event	AC use significantly less during event period
	Green Attitude	Green attitude has no significant impact on use due to self-selection bias	Green attitude has no significant impact on use due to self-selection bias
Tech Only	AC	AC use the same as non-event day, but use higher before and after the event	AC use less during event period
	Green Attitude	Green attitude reduces use significantly during event	Green attitude reduces use significantly during event

**For opt-out groups, we found:**

- Energy usage declined by modest amounts during critical peak hours.
- AC use appeared to have minimal demand impact during critical peak hours.
- Higher levels of green attitude significantly increased the estimated demand impact.

**For opt-in groups, we found:**

- Energy usage declined significantly during critical peak hours.
- AC use tended to increase the demand impact.
- Green attitudes did not significantly influence demand reductions due to the self-selection of “green” people into the program.

**For technology-only groups, we found:**

- Energy use declined by modest amounts during critical peak hours.
- AC units tended to cause a slight reduction in energy use during critical peak hours.
- Green attitude significantly reduced energy use during critical peak hours.

**Appendix A**  
**EmPOWER Pre-Pilot Survey**



# EMPOWER SURVEY YOUR HOME & YOU



**Instructions:** Using ink, please complete the following questions to the best of your ability by shading the bubbles:

**Like this**



**Not like this**



**Errors** should be clearly crossed out and the correct response marked as normal:

**Cross out**



**re-mark**



Please return the completed survey using the provided postage-paid envelope.

**All Information Is Confidential**

Information provided will be confidential and will not be used for any other purpose than for analysis of Sioux Valley Energy's Critical Peak Pricing Program.

1. Which of the following best describes the home served under this account? **CHECK ONE.**

- Single family home
- Other multifamily dwelling
- Apartment
- Vacation house or cabin
- Condominium or townhouse
- Mobile home

2. Please indicate which seasons this home is occupied. **CHECK ALL THAT APPLY.**

- Spring
- Summer
- Fall
- Winter

3. Do you own or rent this home?

- Own
- Rent

4. How many floors of heated living space does your home have? **CHECK ONE.**

- One
- Two
- Three
- Four or more

5. Approximately what year was your home built? **CHECK ONE.**

- Before 1950
- 1950 - 1969
- 1970 - 1979
- 1980 - 1989
- 1990 - 1994
- 1995 - 1999
- 2000 - 2004
- 2005 - 2009
- 2010 or newer
- Unsure

6. What is the square footage of living space in this home? **CHECK ONE.**

- Less than 1,000
- 1,000 - 1,499
- 1,500 - 1,999
- 2,000 - 2,499
- 2,500 - 2,999
- over 3000
- Unsure

7. How many persons, including you, live in this home at least half of the year? **CHECK ONE.**

- One
- Two
- Three
- Four
- Five
- Six
- Seven
- Eight or more

8. How many people are typically present in the home during a normal weekday (approximately 8 AM to 4 PM) **CHECK ONE.**

- None
- One
- Two
- Three
- Four or more

9. How many **males** in each of the following age groups normally occupy this residence at least half of the year? Include yourself if appropriate. **CHECK ONE PER ROW.**

Age Group	0	1	2	3	4+
0 to 18 years	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19 to 40 years	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41 to 64 years	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
65 years or older	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. How many **females** in each of the following age groups normally occupy this residence at least half of the year? Include yourself if appropriate. **CHECK ONE PER ROW.**

Age Group	0	1	2	3	4+
0 to 18 years	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19 to 40 years	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41 to 64 years	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
65 years or older	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. What was your 2010 total household income before taxes (gross income)? **CHECK ONE.**

- Less than \$30,000
- \$30,000 - \$59,999
- \$60,000 - \$99,999
- \$100,000 or more
- Unsure

12. What is the highest level of education you have attained? **CHECK ONE.**

- Some high school
- High school diploma/GED
- Some college/technical school
- Associate or Bachelor's degree
- Some graduate work
- Advanced (graduate or post-graduate) degree

13. Please tell us: **CHECK ONE PER ROW.**

- | Yes                   | No                    |  |
|-----------------------|-----------------------|--|
| <input type="radio"/> | <input type="radio"/> | Do any of the adults in your home own a "smart phone" (iPhone, Blackberry, Droid, etc.)?     |
| <input type="radio"/> | <input type="radio"/> | Do any of the adults in your home use a social networking website (Facebook, Twitter, etc.)? |
| <input type="radio"/> | <input type="radio"/> | Do you have broadband Internet access in your home (DSL, cable, satellite)?                  |
| <input type="radio"/> | <input type="radio"/> | Does your occupation have you working primarily from home?                                   |

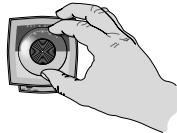
14. How do you feel about the following statements?

**CHECK ONE PER ROW.**

Strongly disagree  
Somewhat disagree  
Unsure  
Somewhat agree  
Strongly agree

- I am usually eager to try new products as soon as they become available.
- I like to be one of the first people to buy an innovative product.

## HEATING AND AIR CONDITIONING EQUIPMENT



15. What type of primary heating system is used to heat this home? **CHECK ONE.**

- Gas furnace  Electric furnace
- Air source heat pump  Gas space heater
- Ground source heat pump  Wood or coal stove
- Hot water/steam radiator  Portable electric heater
- Electric wall heater/baseboard  Unsure

16. In addition to the primary heating system, do you use a *secondary system* for heating? **CHECK ONE.**

- Gas furnace  Electric furnace
- Air source heat pump  Gas space heater
- Ground source heat pump  Wood or coal stove
- Hot water/steam radiator  Portable electric heater
- Electric wall heater/baseboard  Unsure
- No secondary system

17. Can you heat this home entirely with this *secondary* heating system? **CHECK ONE.**

- Yes  No  Unsure  No secondary system

18. Do you have *air conditioning* in this home? **CHECK ALL THAT APPLY.**

- Yes, central AC
- 1 individual room unit
- 2 individual room units
- 3 or more individual room units
- There is NO air conditioning in this home

19. Please indicate how often your central air conditioning system is used during the summer. **CHECK ONE PER COLUMN.**

	<u>Day</u>	<u>Night</u>
Almost never	<input type="radio"/>	<input type="radio"/>
Not very frequently	<input type="radio"/>	<input type="radio"/>
Sometimes	<input type="radio"/>	<input type="radio"/>
Very frequently	<input type="radio"/>	<input type="radio"/>
Almost always	<input type="radio"/>	<input type="radio"/>

20. What is your typical temperature (thermostat) setting by season? **CHECK ONE PER COLUMN.**

	<u>Summer</u>	<u>Winter</u>
54° F or lower	<input type="radio"/>	<input type="radio"/>
55° - 59° F	<input type="radio"/>	<input type="radio"/>
60° - 64° F	<input type="radio"/>	<input type="radio"/>
65° - 69° F	<input type="radio"/>	<input type="radio"/>
70° - 74° F	<input type="radio"/>	<input type="radio"/>
75° - 79° F	<input type="radio"/>	<input type="radio"/>
80° - 84° F	<input type="radio"/>	<input type="radio"/>
85° F or above	<input type="radio"/>	<input type="radio"/>

## WATER HEATING AND LAUNDRY APPLIANCES

21. What type of *water heater do you have* in this home? **CHECK ONE.**

- Electric  Electric tankless
- Natural gas  Natural gas tankless
- LP gas (propane)  Solar
- Geothermal  Heat pump water heater
- Do not have a water heater at this location

22. About how large is the storage tank on the main water heater? **CHECK ONE.**

- Less than 40 gallons
- 40 to 60 gallons
- More than 60 gallons
- Unsure
- Do not have a water heater

23. Which of the following water heater conservation measures do you have in this home? **CHECK ALL THAT APPLY.**

- Tank wrapped with insulation
- Pipes wrapped with insulation
- High efficiency water heater
- Co-op installed water heater control switch
- Unsure
- None of the above

24. Do you have a *clothes washer* in this home? **CHECK ONE.**

- Yes  No

25. Do you have a *clothes dryer* in this home? **CHECK ONE.**

- Yes, electric  Yes, natural or LP gas  No



## OTHER APPLIANCES AND EQUIPMENT



26. How many of each of the following do you have in this home?  
**CHECK ONE FOR EACH APPLIANCE.**

	0	1	2	3	4	5	6
Microwave oven	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Refrigerator	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Freezer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dishwasher	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Electric water heater	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
TV (standard)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
TV – flat screen over 40"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Desktop computer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Laptop Computer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dehumidifier	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Air purifier	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Well pump	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pool – above ground	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pool – in ground	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Water bed heater	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ceiling fan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Whole house fan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spa/hot tub	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Solar (photovoltaic) panels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supplemental generator	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

27. What type of **kitchen range/oven** (not your microwave) do you have in this home? **CHECK ONE.**

- Electric
- Natural gas
- Combination (natural gas range/electric oven)
- LP gas
- Do not have a kitchen oven/range

28. About how old are your appliances? **CHECK ONE FOR EACH APPLIANCE YOU OWN IN THIS HOME.**

	Age of Appliance in Years				
	0-5	6-10	11-20	20+	Unsure
Primary Heating System	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Central Air Conditioner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Room Air Conditioner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Main Refrigerator	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Water Heater	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clothes Washer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clothes Dryer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dishwasher	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## ENERGY EFFICIENT LIGHTING AND CONSERVATION MEASURES



29. How many compact fluorescent (CFL) light bulbs are in your home?  
**CHECK ONE.**

- None
- 3 or fewer
- 4 to 7
- 8 to 11
- 12 to 16
- 17 or more

30. Which of the following conservation measures have been made to your home? **CHECK ALL THAT APPLY.**

- Additional ceiling, attic, or roof insulation
- Additional or new wall insulation
- Additional floor insulation (below lowest floor lived in)
- Storm doors
- Storm windows or thermopane windows
- Attic ventilation
- Programmable thermostat
- Insulated window shutters or shades
- Additional caulking and weather-stripping
- Heating system pipe or duct insulation
- Purchased Energy Star appliances
- None of the above

*Thank you for your time!*

*Please use the following space for any additional comments you may have!*

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## WHAT DO YOU THINK?

**Thank you for telling us a little about you and your home. Please take another minute to tell us some of your opinions about current energy topics that affect both of us.**

31. How do you feel about the following statements? **CHECK ONE PER ROW.**

- | Strongly disagree     | Somewhat disagree     | Unsure                | Somewhat agree        | Strongly agree        |   |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | The long term threat from <b>global warming/global climate change</b> is serious.   |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | The long term threat from our <b>dependence on foreign energy sources</b> is serious.   |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | I trust <b>environmental organizations</b> , such as the Sierra Club or Greenpeace, to give me dependable information on how to optimize my energy use.                   |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | I trust <b>academic or scientific organizations</b> , such as researchers at a major University, to give me dependable information on how to optimize my energy use.      |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | I trust <b>government/public sources</b> , such as the Department of Energy or my local municipality, to give me dependable information on how to optimize my energy use. |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | I trust <b>electrical appliance manufacturers/retailers</b> , such as GE or Sears, to give me dependable information on how to optimize my energy use.                    |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | I trust <b>online sources</b> , such as a blog or online discussion forum, to give me dependable information on how to optimize my energy use.                            |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | I trust <b>daily newspapers and the nightly news</b> to give me dependable information on how to optimize my energy use.  |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Everyone should make a real effort to conserve energy.  |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | I regularly pay attention to energy related issues because they affect me directly, not just our country.   |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | I have sought ways to reduce my energy use in order to do what I can to protect the environment.  |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | I have sought ways to reduce my energy costs so that I can have a lower bill.   |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | I monitor my home's energy use by reviewing my energy bill on a monthly basis.  |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Consumers who use too much energy should pay higher rates as an incentive to conserve more.   |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | I would be willing to pay a little more on my monthly electricity bill for "green" energy that comes from renewable sources.  |

**Thank You.**



**SIoux VALLEY**  
ENERGY

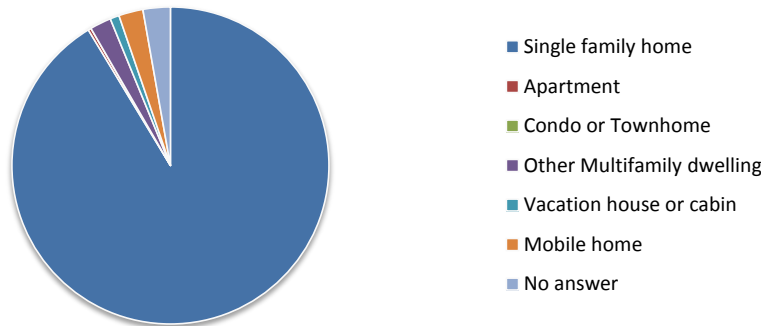
**Appendix B**  
**EmPOWER Pre-Pilot Survey**  
**Compilation Report**

## EMPower Pre-Pilot Survey

### Your Home and You

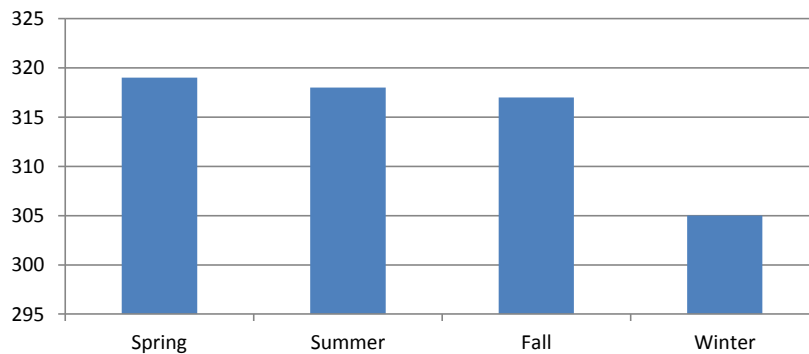
1 Which of the following best describes the home served under this account? CHECK ONE.

	<u>Responses</u>	<u>Percentage</u>
Single family home	295	91.33%
Apartment	1	0.31%
Condo or Townhome	0	0.00%
Other Multifamily dwelling	7	2.17%
Vacation house or cabin	3	0.93%
Mobile home	8	2.48%
No answer	9	2.79%
	<b>323</b>	<b>100.00%</b>



2 Please indicate which seasons this home is occupied. CHECK ALL THAT APPLY.

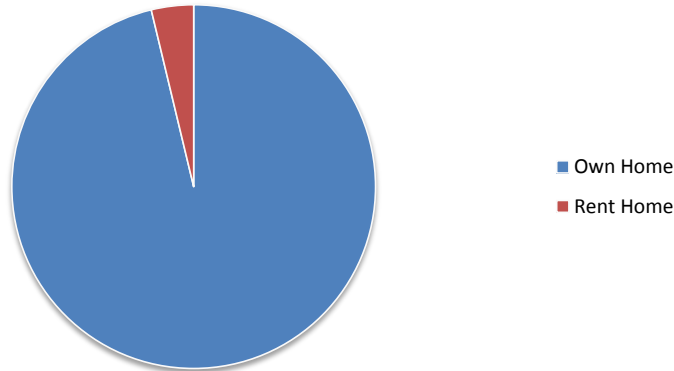
	<u>Responses</u>	<u>Percentage of Respondents</u>
Spring	319	98.76%
Summer	318	98.45%
Fall	317	98.14%
Winter	305	94.43%





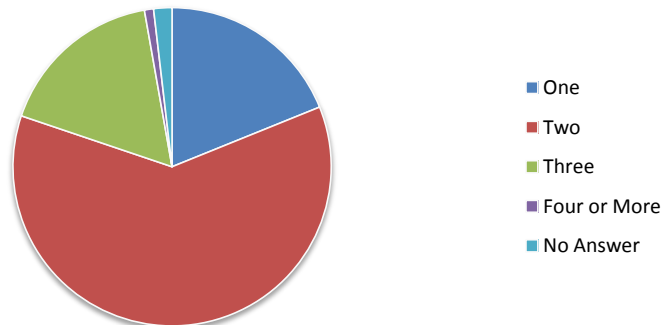
**3. Do you own your home or rent? CHECK ONE.**

	<u>Responses</u>	<u>Percentage</u>
Own Home	308	95.36%
Rent Home	12	3.72%
No Answer	3	0.93%
	<hr/> 323	<hr/> 100.00%



**4. How many floors of heated living space does your home have? CHECK ONE.**

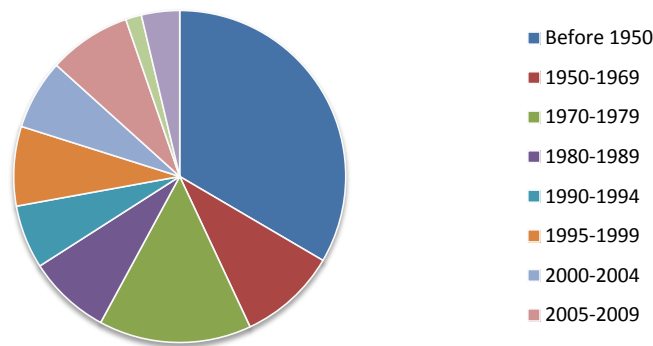
	<u>Responses</u>	<u>Percentage</u>
One	61	18.89%
Two	198	61.30%
Three	55	17.03%
Four or More	3	0.93%
No Answer	6	1.86%
	<hr/> 323	<hr/> 100.00%





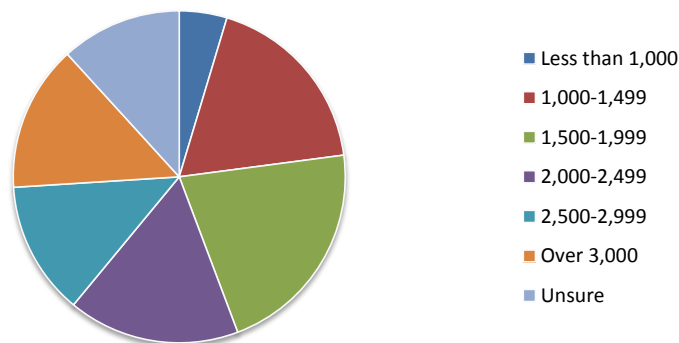
**5. Approximately what year was your home built? CHECK ONE.**

	<u>Responses</u>	<u>Percentage</u>
Before 1950	108	33.44%
1950-1969	31	9.60%
1970-1979	48	14.86%
1980-1989	26	8.05%
1990-1994	20	6.19%
1995-1999	25	7.74%
2000-2004	22	6.81%
2005-2009	26	8.05%
2010 or newer	5	1.55%
Unsure	12	3.72%
	<hr/> 323	<hr/> 100.00%



**6. What is the square footage of living space in this home? CHECK ONE.**

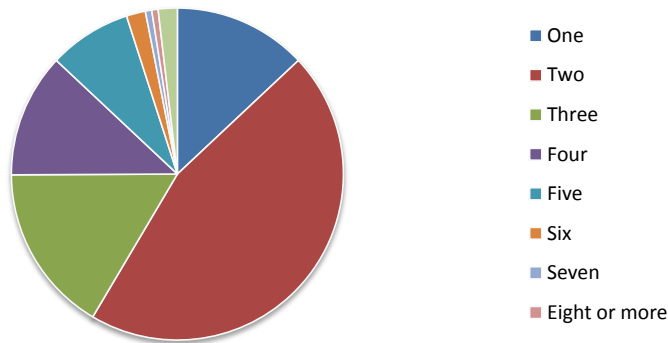
	<u>Responses</u>	<u>Percentage</u>
Less than 1,000	15	4.64%
1,000-1,499	59	18.27%
1,500-1,999	69	21.36%
2,000-2,499	54	16.72%
2,500-2,999	42	13.00%
Over 3,000	46	14.24%
Unsure	38	11.76%
	<hr/> 323	<hr/> 100.00%





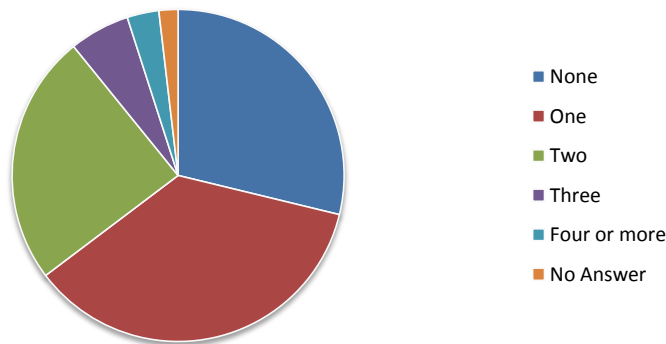
**7. How many person, including you, live in this home at least half of the year?  
CHECK ONE.**

	<u>Responses</u>	<u>Percentage</u>
One	42	13.00%
Two	147	45.51%
Three	53	16.41%
Four	39	12.07%
Five	26	8.05%
Six	6	1.86%
Seven	2	0.62%
Eight or more	2	0.62%
No Answer	6	1.86%
	<hr/> 323	<hr/> 100.00%



**8. How many people are typically present in the home during a normal weekday  
(approximately 8 AM to 4 PM)? CHECK ONE.**

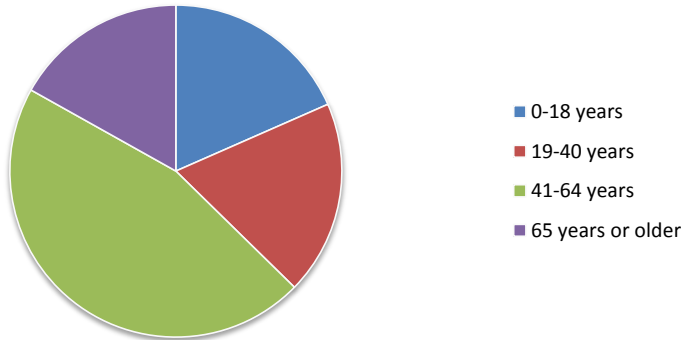
	<u>Responses</u>	<u>Percentage</u>
None	93	28.79%
One	116	35.91%
Two	79	24.46%
Three	19	5.88%
Four or more	10	3.10%
No Answer	6	1.86%
	<hr/> 323	<hr/> 100.00%





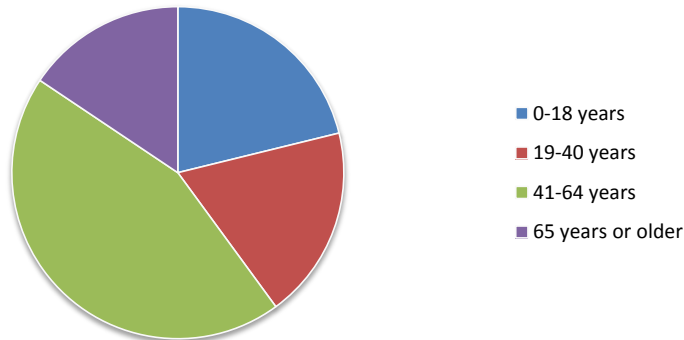
9. How many males in each of the following age groups normally occupy this residence at least half of the year? Include yourself if appropriate. CHECK ONE PER ROW.

	<u>Responses</u>	<u>Percentage</u>
0-18 years	72	18.41%
19-40 years	74	18.93%
41-64 years	179	45.78%
65 years or older	66	16.88%
	<hr/>	
	391	100.00%



10. How many females in each of the following age groups normally occupy this residence at least half of the year? Include yourself if appropriate. CHECK ONE PER ROW.

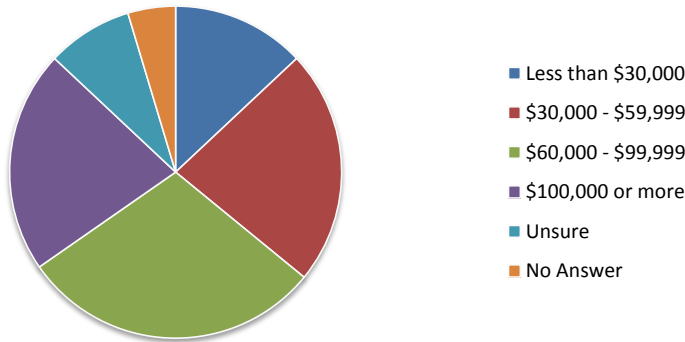
	<u>Responses</u>	<u>Percentage</u>
0-18 years	80	21.16%
19-40 years	71	18.78%
41-64 years	168	44.44%
65 years or older	59	15.61%
	<hr/>	
	378	100.00%





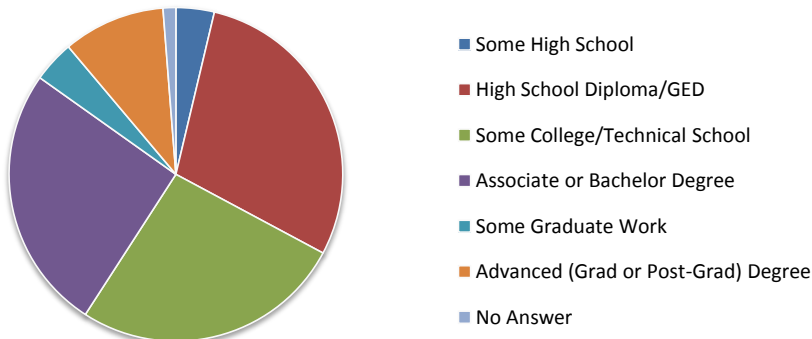
**11. What was your 2010 total household income before taxes (gross income)? CHECK ONE.**

	<u>Responses</u>	<u>Percentage</u>
Less than \$30,000	42	13.00%
\$30,000 - \$59,999	74	22.91%
\$60,000 - \$99,999	95	29.41%
\$100,000 or more	70	21.67%
Unsure	27	8.36%
No Answer	15	4.64%
	<hr/> 323	<hr/> 100.00%



**12. What is the highest level of education you have attained? CHECK ONE.**

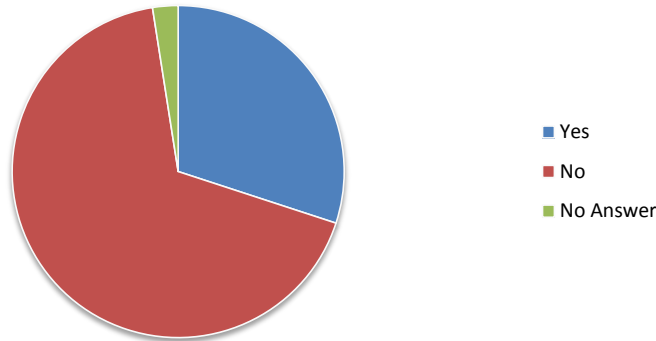
	<u>Responses</u>	<u>Percentage</u>
Some High School	12	3.72%
High School Diploma/GED	94	29.10%
Some College/Technical School	85	26.32%
Associate or Bachelor Degree	83	25.70%
Some Graduate Work	13	4.02%
Advanced (Grad or Post-Grad) Degree	32	9.91%
No Answer	4	1.24%
	<hr/> 323	<hr/> 100.00%





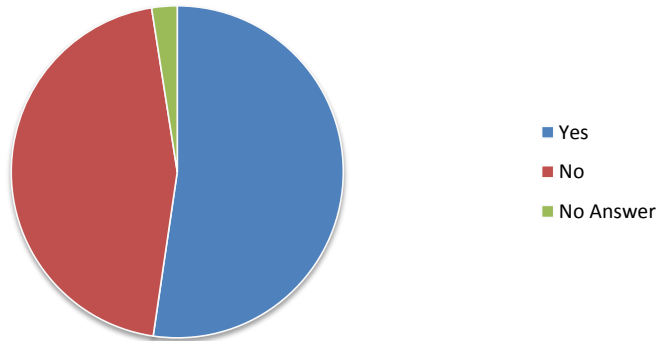
**13a. Do any of the adults in your home own a "smart phone" (iPhone, Blackberry, Droid, etc)?**  
**CHECK ONE.**

	<u>Responses</u>	<u>Percentage</u>
Yes	97	30.03%
No	218	67.49%
No Answer	8	2.48%
	<hr/> 323	<hr/> 100.00%



**13b. Do any of the adults in your home use a social networking website (Facebook, Twitter, etc)?** CHECK ONE.

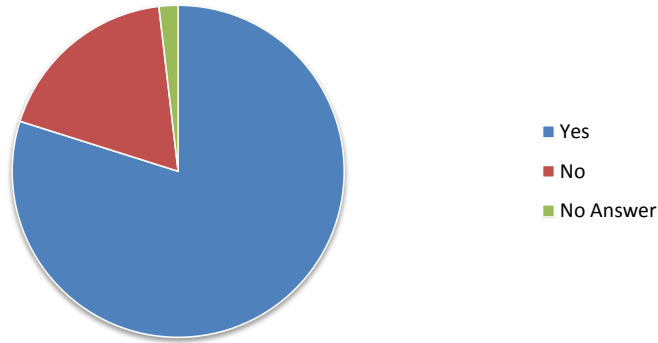
	<u>Responses</u>	<u>Percentage</u>
Yes	169	52.32%
No	146	45.20%
No Answer	8	2.48%
	<hr/> 323	<hr/> 100.00%





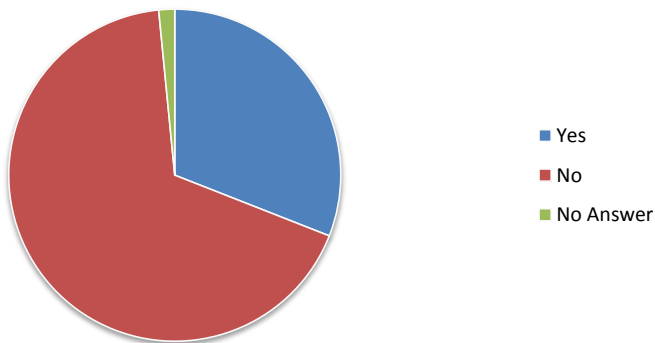
**13c. Do you have broadband Internet access in your home (DSI, Cable, Satellite)? CHECK ONE.**

	<u>Responses</u>	<u>Percentage</u>
Yes	258	79.88%
No	59	18.27%
No Answer	6	1.86%
	<hr/> 323	<hr/> 100.00%



**13d. Does your occupation have you working primarily from home? CHECK ONE.**

	<u>Responses</u>	<u>Percentage</u>
Yes	100	30.96%
No	218	67.49%
No Answer	5	1.55%
	<hr/> 323	<hr/> 100.00%

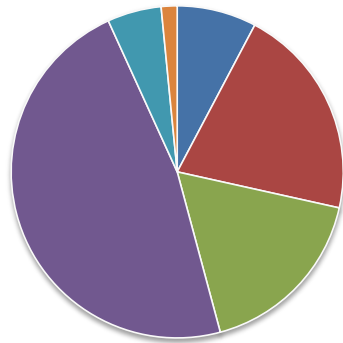




**14. How do you feel about the following statements? CHECK ONE PER ROW.**

**a. I am usually eager to try new products as soon as they become available.**

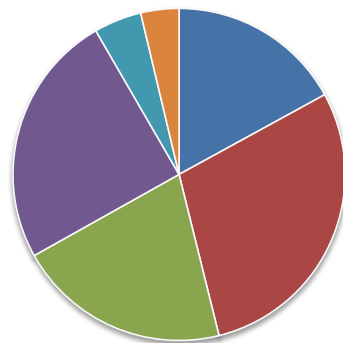
	<u>Responses</u>	<u>Percentage</u>
Strongly Disagree	25	7.74%
Somewhat Disagree	67	20.74%
Unsure	56	17.34%
Somewhat Agree	153	47.37%
Strongly Agree	17	5.26%
No Answer	5	1.55%
	<hr/> 323	<hr/> 100.00%



- Strongly Disagree
- Somewhat Disagree
- Unsure
- Somewhat Agree
- Strongly Agree
- No Answer

**b. I like to be one of the first people to buy an innovative product.**

	<u>Responses</u>	<u>Percentage</u>
Strongly Disagree	55	17.03%
Somewhat Disagree	94	29.10%
Unsure	67	20.74%
Somewhat Agree	80	24.77%
Strongly Agree	15	4.64%
No Answer	12	3.72%
	<hr/> 323	<hr/> 100.00%

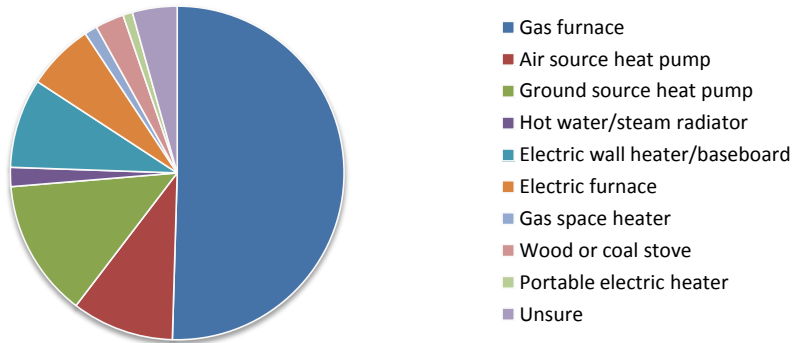


- Strongly Disagree
- Somewhat Disagree
- Unsure
- Somewhat Agree
- Strongly Agree
- No Answer

**Heating & Air Conditioning Equipment**

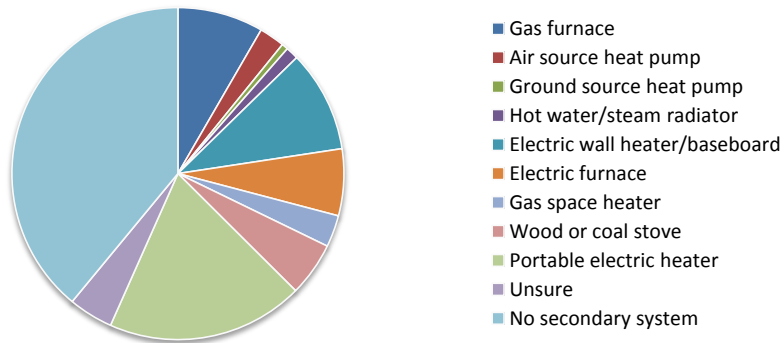
15. What type of primary heating system is used to heat this home? CHECK ONE.

	<u>Responses</u>	<u>Percentage</u>
Gas furnace	163	50.46%
Air source heat pump	32	9.91%
Ground source heat pump	43	13.31%
Hot water/steam radiator	6	1.86%
Electric wall heater/baseboard	28	8.67%
Electric furnace	21	6.50%
Gas space heater	4	1.24%
Wood or coal stove	9	2.79%
Portable electric heater	3	0.93%
Unsure	14	4.33%
	323	100.00%



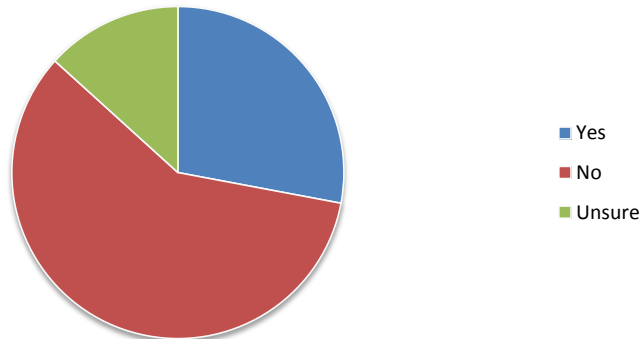
**16. In addition to the primary heating system, do you use a secondary system for heating? CHECK ONE.**

	<u>Responses</u>	<u>Percentage</u>
Gas furnace	27	8.36%
Air source heat pump	8	2.48%
Ground source heat pump	2	0.62%
Hot water/steam radiator	4	1.24%
Electric wall heater/baseboard	32	9.91%
Electric furnace	21	6.50%
Gas space heater	10	3.10%
Wood or coal stove	17	5.26%
Portable electric heater	62	19.20%
Unsure	14	4.33%
No secondary system	126	39.01%
	<hr/> 323	<hr/> 100.00%



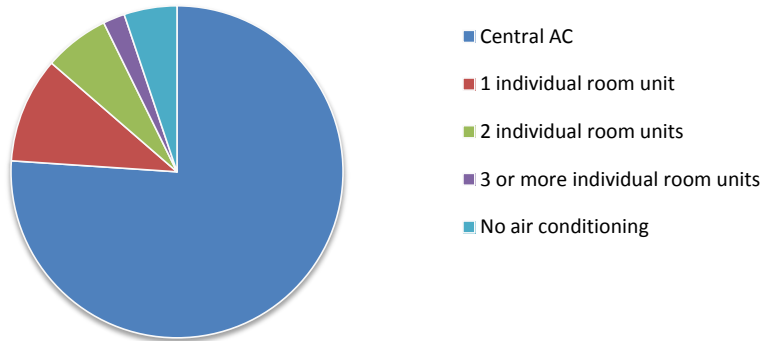
**17. Can you heat this home entirely with this secondary heating system? CHECK ONE.**

	<u>Responses</u>	<u>Percentage</u>
Yes	59	27.96%
No	124	58.77%
Unsure	28	13.27%
	<hr/> 211	<hr/> 100.00%



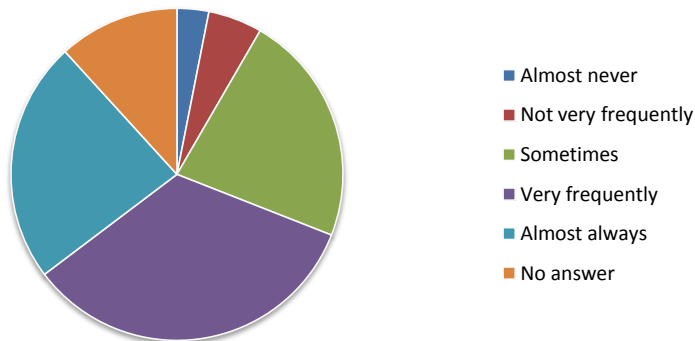
**18. Do you have air conditioning in this home?**

	<u>Responses</u>	<u>Percentage</u>
Central AC	251	76.06%
1 individual room unit	34	10.30%
2 individual room units	21	6.36%
3 or more individual room units	7	2.12%
No air conditioning	17	5.15%
	<hr/> 330	<hr/> 100.00%



**19. Please indicate how often your central air conditioning system is used during the summer. CHECK ONE PER COLUMN.**

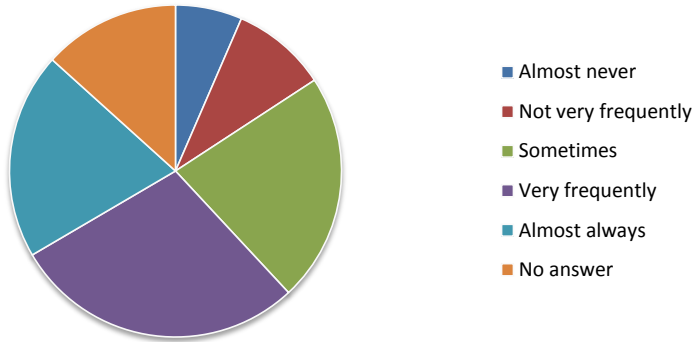
<u>Day time</u>	<u>Responses</u>	<u>Percentage</u>
Almost never	10	3.10%
Not very frequently	17	5.26%
Sometimes	73	22.60%
Very frequently	109	33.75%
Almost always	76	23.53%
No answer	38	11.76%
	<hr/> 323	<hr/> 100.00%





**Night time**

	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
Almost never	21	6.50%
Not very frequently	30	9.29%
Sometimes	72	22.29%
Very frequently	92	28.48%
Almost always	65	20.12%
No answer	43	13.31%
	<b>323</b>	<b>100.00%</b>

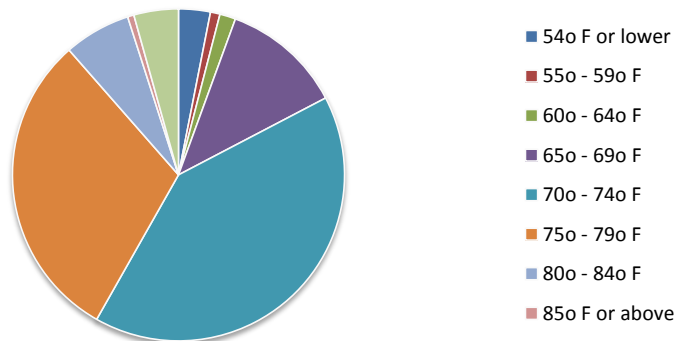


**20. What is your typical temperature (thermostat) setting by season?**

**CHECK ONE PER COLUMN.**

**Summer**

	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
54° F or lower	10	3.10%
55° - 59° F	3	0.93%
60° - 64° F	5	1.55%
65° - 69° F	38	11.76%
70° - 74° F	132	40.87%
75° - 79° F	98	30.34%
80° - 84° F	21	6.50%
85° F or above	2	0.62%
No Answer	14	4.33%
	<b>323</b>	<b>100.00%</b>



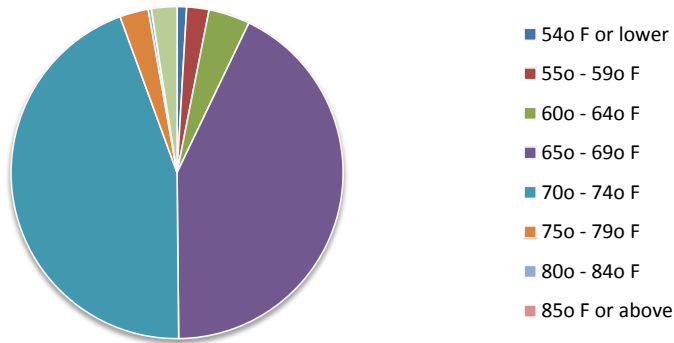




**Winter**

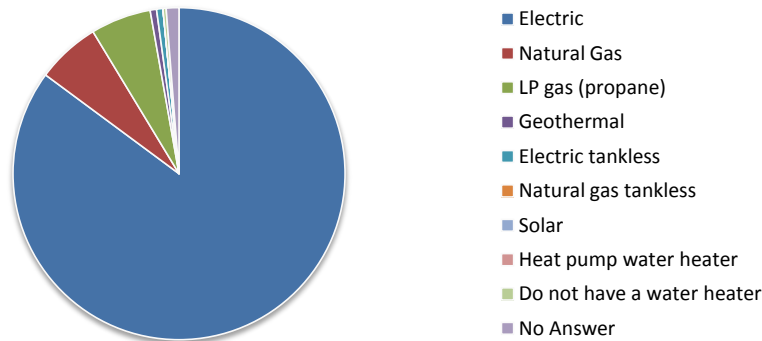
54° F or lower  
55° - 59° F  
60° - 64° F  
65° - 69° F  
70° - 74° F  
75° - 79° F  
80° - 84° F  
85° F or above  
No Answer

<b><u>Responses</u></b>	<b><u>Percentage</u></b>
3	0.93%
7	2.17%
13	4.02%
138	42.72%
144	44.58%
9	2.79%
1	0.31%
0	0.00%
8	2.48%
<hr/> 323	<hr/> 100.00%

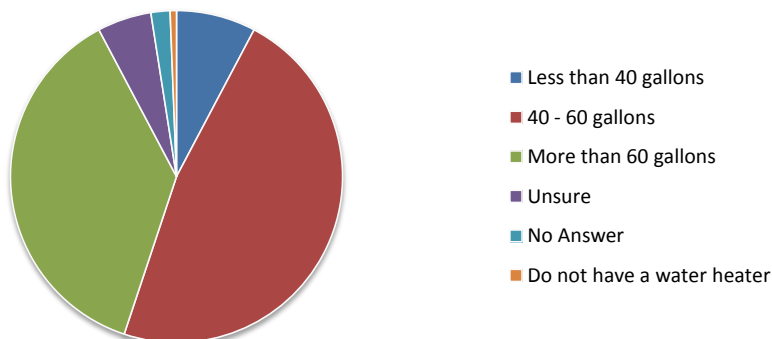


**Water Heating and Laundry Appliances**
**21. What type of water heater do you have in this home? CHECK ONE.**

	<u>Responses</u>	<u>Percentage</u>
Electric	275	85.14%
Natural Gas	20	6.19%
LP gas (propane)	19	5.88%
Geothermal	2	0.62%
Electric tankless	2	0.62%
Natural gas tankless	0	0.00%
Solar	0	0.00%
Heat pump water heater	0	0.00%
Do not have a water heater	1	0.31%
No Answer	4	1.24%
	323	100.00%


**22. About how large is the storage tank on the main water heater? CHECK ONE.**

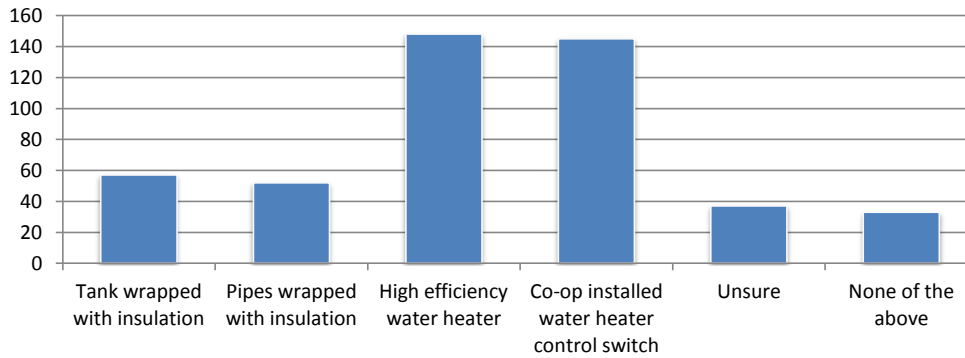
	<u>Responses</u>	<u>Percentage</u>
Less than 40 gallons	25	7.74%
40 - 60 gallons	153	47.37%
More than 60 gallons	120	37.15%
Unsure	17	5.26%
No Answer	6	1.86%
Do not have a water heater	2	0.62%
	323	100.00%





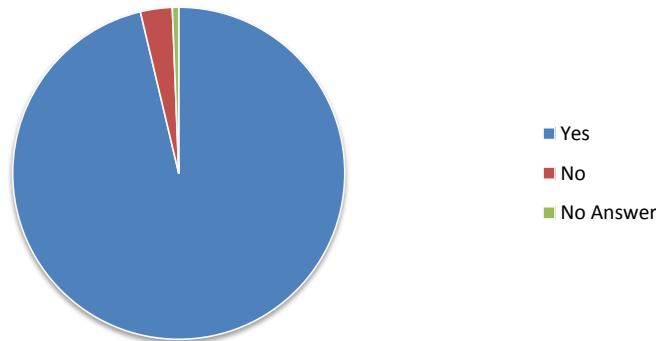
**23. Which of the following water heater conservation measures do you have in this home? CHECK ALL THAT APPLY**

	<u>Responses</u>	<u>Percentage</u>
Tank wrapped with insulation	57	12.08%
Pipes wrapped with insulation	52	11.02%
High efficiency water heater	148	31.36%
Co-op installed water heater control switch	145	30.72%
Unsure	37	7.84%
None of the above	33	6.99%
	<b>472</b>	<b>100.00%</b>



**24. Do you have a clothes washer in this home? CHECK ONE.**

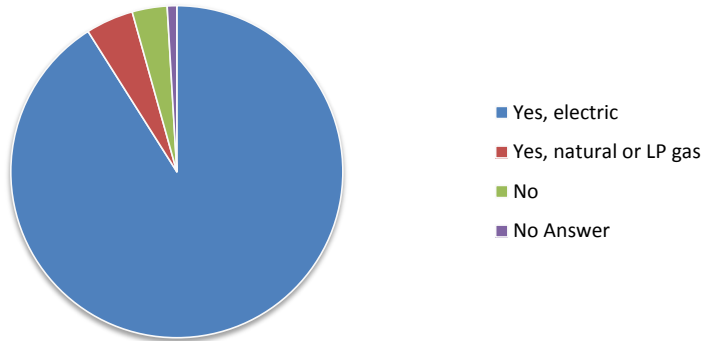
	<u>Responses</u>	<u>Percentage</u>
Yes	311	96.28%
No	10	3.10%
No Answer	2	0.62%
	<b>323</b>	<b>100.00%</b>





**25. Do you have a clothes dryer in this home? CHECK ONE.**

	<u>Responses</u>	<u>Percentage</u>
Yes, electric	294	91.02%
Yes, natural or LP gas	15	4.64%
No	11	3.41%
No Answer	3	0.93%
	<hr/> 323	100.00%

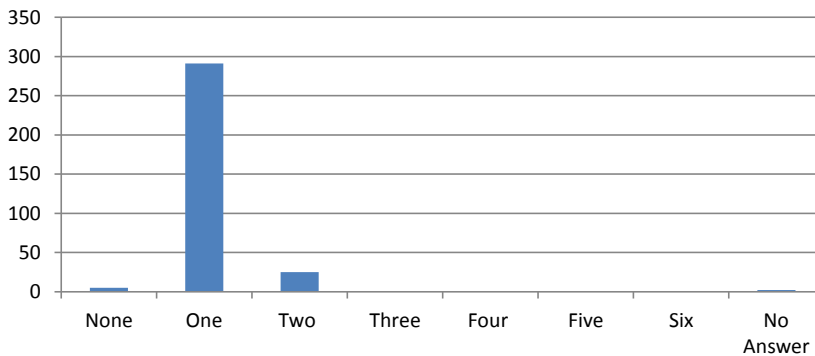


**Other Appliances and Equipment**

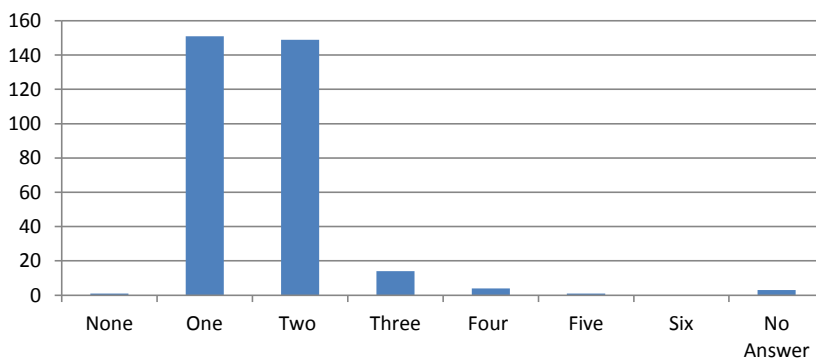
26. How many of each of the following do you have in this home?

CHECK ONE FOR EACH APPLIANCE.

<u>Microwave Oven</u>	<u>Responses</u>	<u>Percentage</u>
None	5	1.55%
One	291	90.09%
Two	25	7.74%
Three	0	0.00%
Four	0	0.00%
Five	0	0.00%
Six	0	0.00%
No Answer	2	0.62%
	<b>323</b>	<b>100.00%</b>

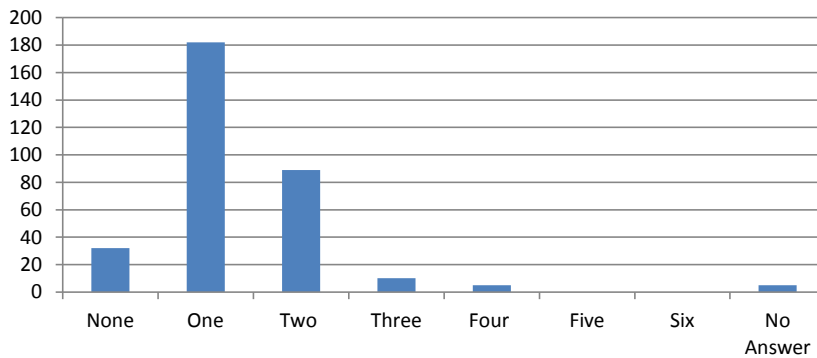


<u>Refrigerator</u>	<u>Responses</u>	<u>Percentage</u>
None	1	0.31%
One	151	46.75%
Two	149	46.13%
Three	14	4.33%
Four	4	1.24%
Five	1	0.31%
Six	0	0.00%
No Answer	3	0.93%
	<b>323</b>	<b>100.00%</b>

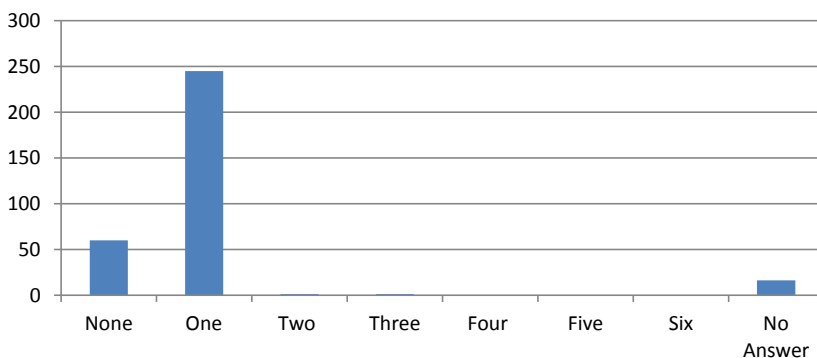




<b>Freezer</b>	<b>Responses</b>	<b>Percentage</b>
None	32	9.91%
One	182	56.35%
Two	89	27.55%
Three	10	3.10%
Four	5	1.55%
Five	0	0.00%
Six	0	0.00%
No Answer	5	1.55%
	<b>323</b>	<b>100.00%</b>



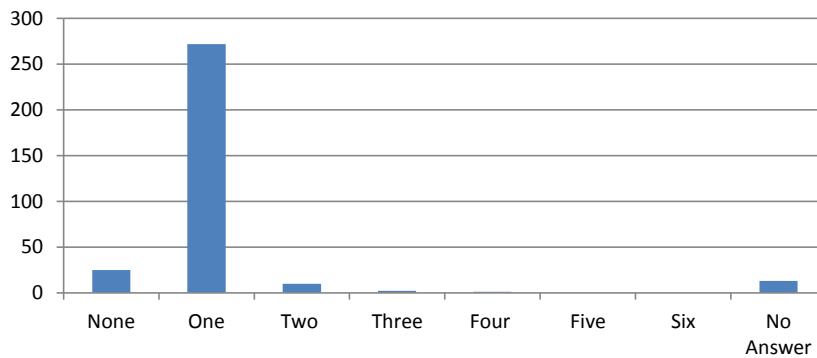
<b>Dishwasher</b>	<b>Responses</b>	<b>Percentage</b>
None	60	18.58%
One	245	75.85%
Two	1	0.31%
Three	1	0.31%
Four	0	0.00%
Five	0	0.00%
Six	0	0.00%
No Answer	16	4.95%
	<b>323</b>	<b>100.00%</b>





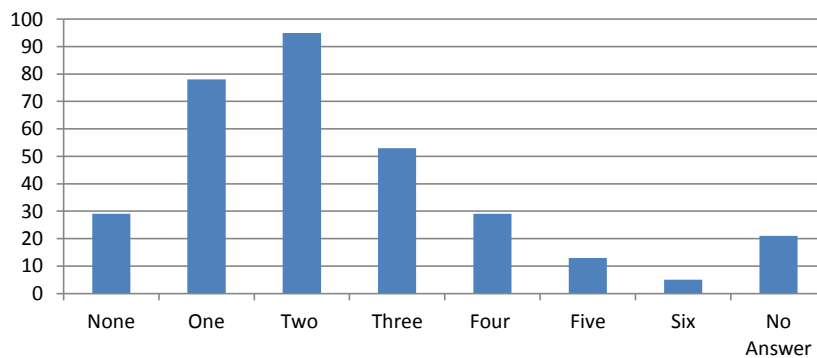
**Electric Water Heater**

	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
None	25	7.74%
One	272	84.21%
Two	10	3.10%
Three	2	0.62%
Four	1	0.31%
Five	0	0.00%
Six	0	0.00%
No Answer	13	4.02%
	<b>323</b>	<b>100.00%</b>



**TV (standard)**

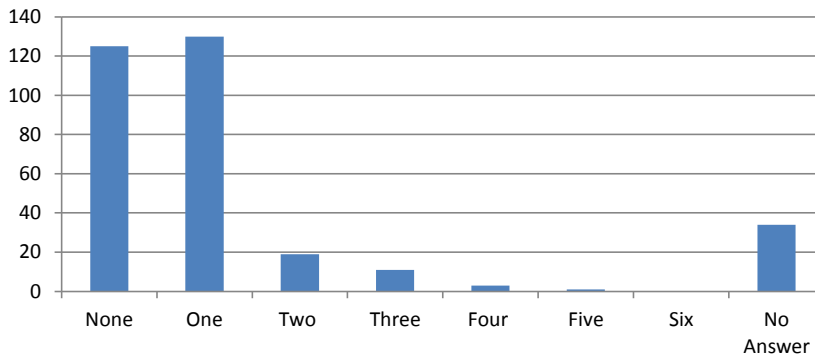
	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
None	29	8.98%
One	78	24.15%
Two	95	29.41%
Three	53	16.41%
Four	29	8.98%
Five	13	4.02%
Six	5	1.55%
No Answer	21	6.50%
	<b>323</b>	<b>100.00%</b>





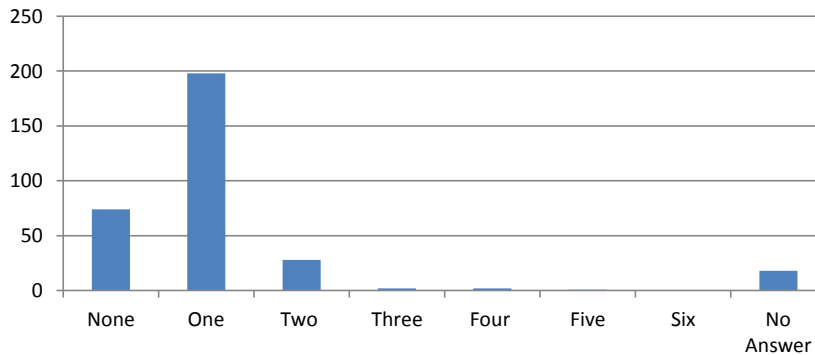
**TV - flat screen over 40"**

	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
None	125	38.70%
One	130	40.25%
Two	19	5.88%
Three	11	3.41%
Four	3	0.93%
Five	1	0.31%
Six	0	0.00%
No Answer	34	10.53%
	<b>323</b>	<b>100.00%</b>



**Desktop Computer**

	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
None	74	22.91%
One	198	61.30%
Two	28	8.67%
Three	2	0.62%
Four	2	0.62%
Five	1	0.31%
Six	0	0.00%
No Answer	18	5.57%
	<b>323</b>	<b>100.00%</b>

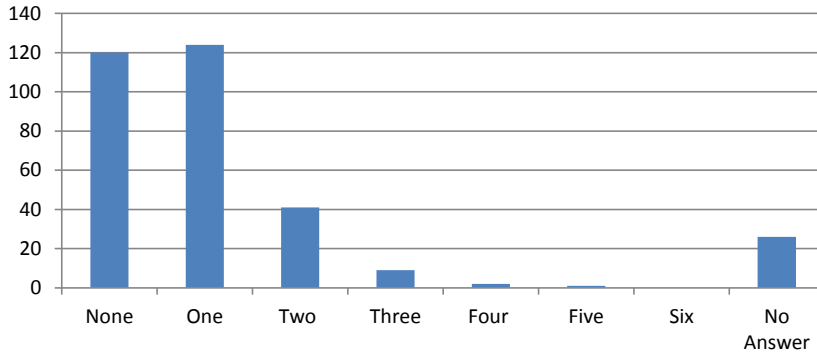






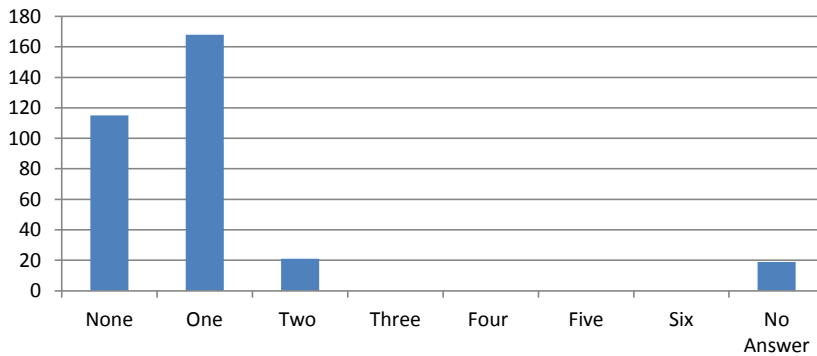
**Laptop Computer**

	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
None	120	37.15%
One	124	38.39%
Two	41	12.69%
Three	9	2.79%
Four	2	0.62%
Five	1	0.31%
Six	0	0.00%
No Answer	26	8.05%
	<b>323</b>	<b>100.00%</b>



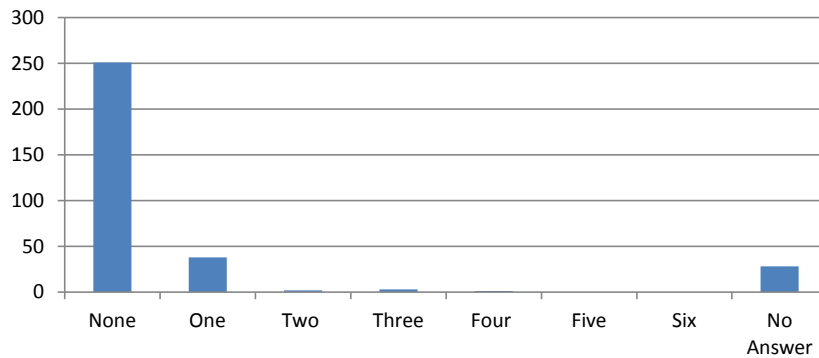
**Dehumidifier**

	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
None	115	35.60%
One	168	52.01%
Two	21	6.50%
Three	0	0.00%
Four	0	0.00%
Five	0	0.00%
Six	0	0.00%
No Answer	19	5.88%
	<b>323</b>	<b>100.00%</b>

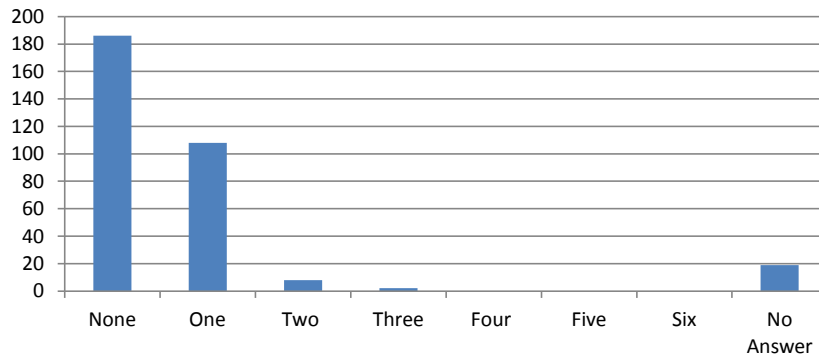




<b><u>Air Purifier</u></b>	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
None	251	77.71%
One	38	11.76%
Two	2	0.62%
Three	3	0.93%
Four	1	0.31%
Five	0	0.00%
Six	0	0.00%
No Answer	28	8.67%
	<b>323</b>	<b>100.00%</b>



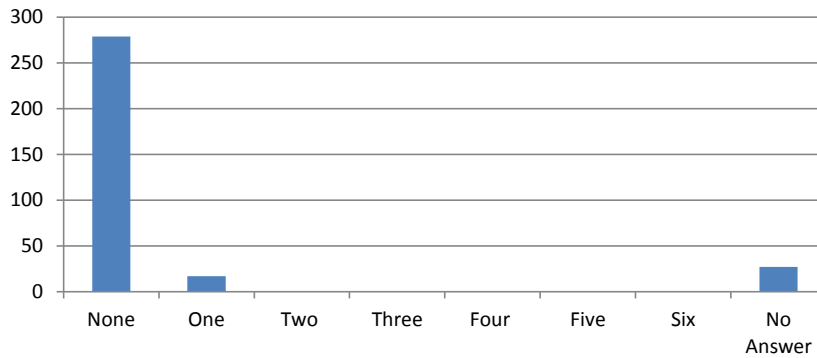
<b><u>Well Pump</u></b>	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
None	186	57.59%
One	108	33.44%
Two	8	2.48%
Three	2	0.62%
Four	0	0.00%
Five	0	0.00%
Six	0	0.00%
No Answer	19	5.88%
	<b>323</b>	<b>100.00%</b>





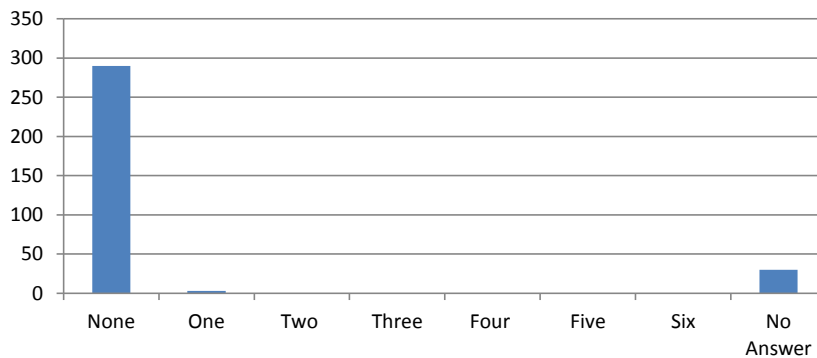
**Pool - Above Ground**

	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
None	279	86.38%
One	17	5.26%
Two	0	0.00%
Three	0	0.00%
Four	0	0.00%
Five	0	0.00%
Six	0	0.00%
No Answer	27	8.36%
	<b>323</b>	<b>100.00%</b>



**Pool - In Ground**

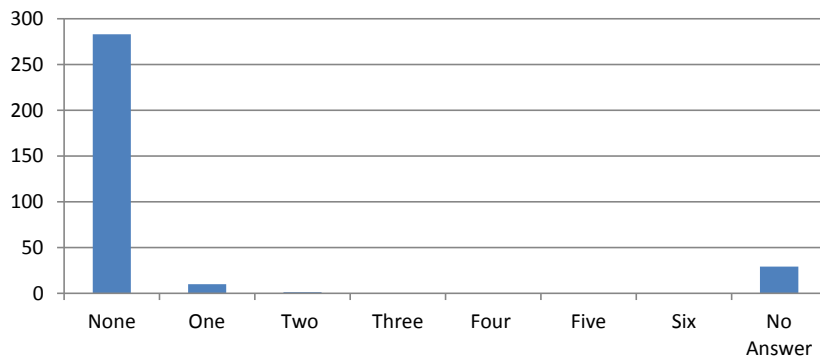
	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
None	290	89.78%
One	3	0.93%
Two	0	0.00%
Three	0	0.00%
Four	0	0.00%
Five	0	0.00%
Six	0	0.00%
No Answer	30	9.29%
	<b>323</b>	<b>100.00%</b>





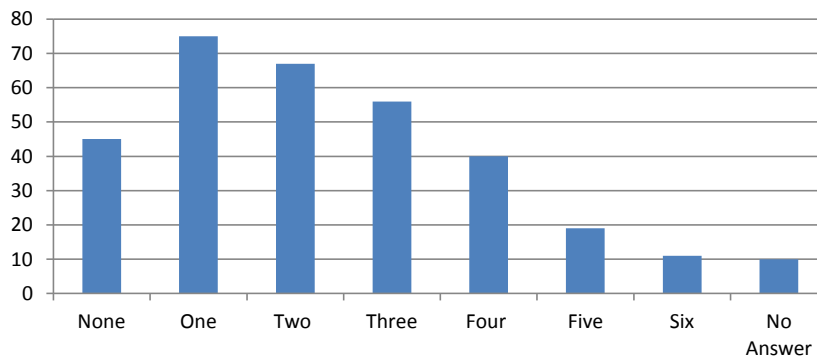
**Water Bed Heater**

	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
None	283	87.62%
One	10	3.10%
Two	1	0.31%
Three	0	0.00%
Four	0	0.00%
Five	0	0.00%
Six	0	0.00%
No Answer	29	8.98%
	<b>323</b>	<b>100.00%</b>



**Ceiling Fan**

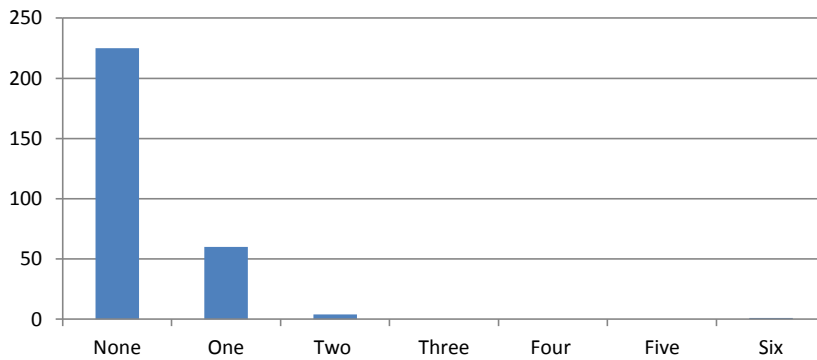
	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
None	45	13.93%
One	75	23.22%
Two	67	20.74%
Three	56	17.34%
Four	40	12.38%
Five	19	5.88%
Six	11	3.41%
No Answer	10	3.10%
	<b>323</b>	<b>100.00%</b>





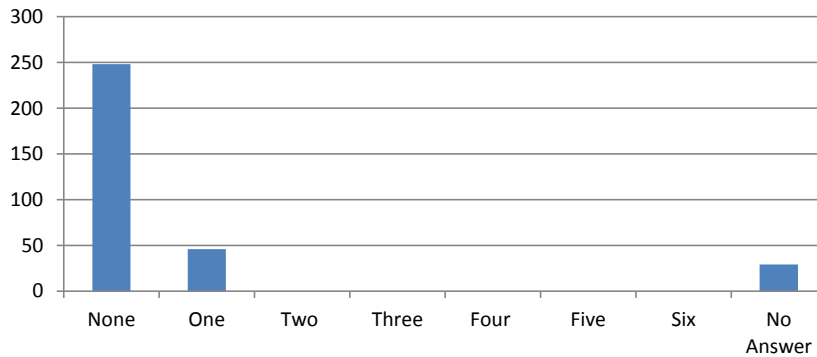
**Whole House Fan**

	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
None	225	69.66%
One	60	18.58%
Two	4	1.24%
Three	0	0.00%
Four	0	0.00%
Five	0	0.00%
Six	1	0.31%
No Answer	33	10.22%
	<b>323</b>	<b>100.00%</b>



**Spa/Hot Tub**

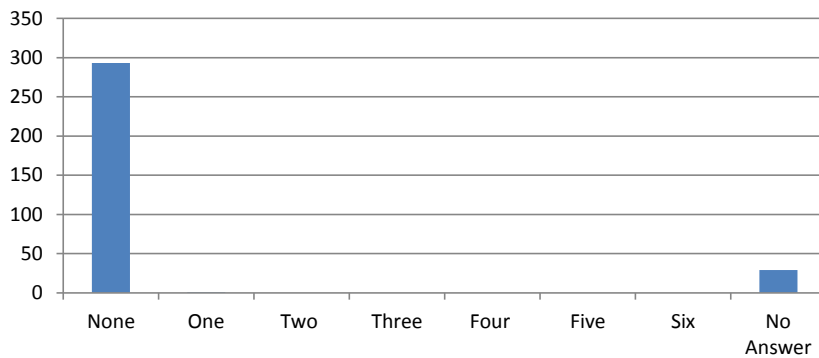
	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
None	248	76.78%
One	46	14.24%
Two	0	0.00%
Three	0	0.00%
Four	0	0.00%
Five	0	0.00%
Six	0	0.00%
No Answer	29	8.98%
	<b>323</b>	<b>100.00%</b>





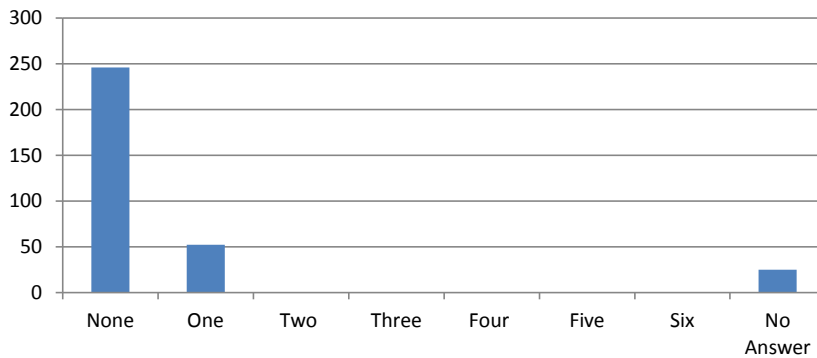
**Solar (photovoltaic) Panels**

	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
None	293	90.71%
One	1	0.31%
Two	0	0.00%
Three	0	0.00%
Four	0	0.00%
Five	0	0.00%
Six	0	0.00%
No Answer	29	8.98%
	<b>323</b>	<b>100.00%</b>



**Supplemental Generator**

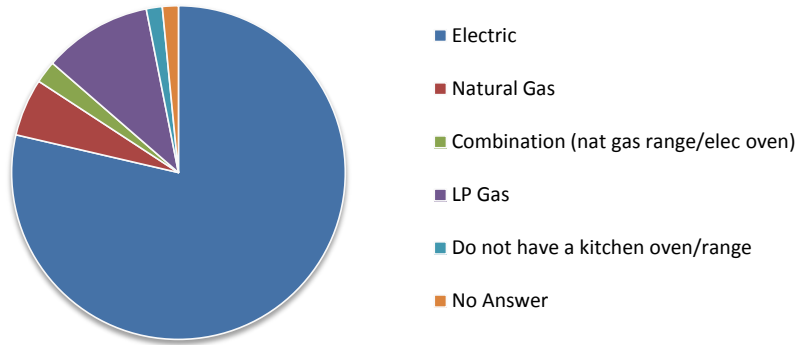
	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
None	246	76.16%
One	52	16.10%
Two	0	0.00%
Three	0	0.00%
Four	0	0.00%
Five	0	0.00%
Six	0	0.00%
No Answer	25	7.74%
	<b>323</b>	<b>100.00%</b>





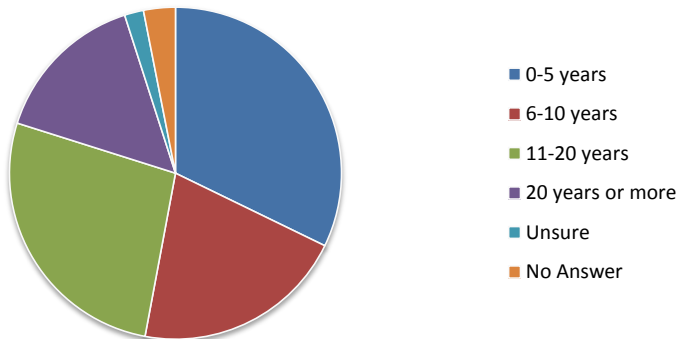
**27. What type of kitchen range/oven (not microwave) do you have in this home? CHECK ONE.**

	<u>Responses</u>	<u>Percentage</u>
Electric	254	78.64%
Natural Gas	18	5.57%
Combination (nat gas range/elec oven)	7	2.17%
LP Gas	34	10.53%
Do not have a kitchen oven/range	5	1.55%
No Answer	5	1.55%
	<hr/> 323	<hr/> 100.00%



**28. About how old are your appliances? CHECK ONE FOR EACH APPLIANCE YOU OWN IN THIS HOME.**

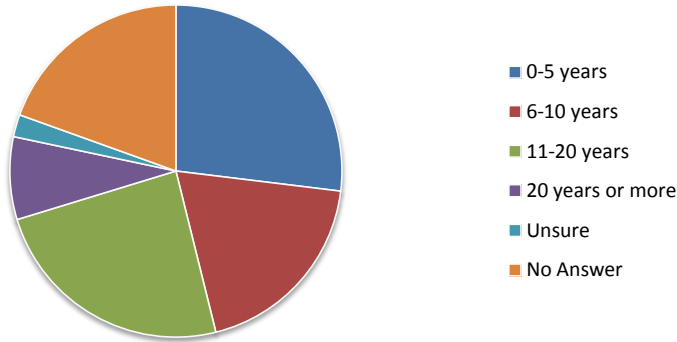
<u>Primary Heating System</u>	<u>Responses</u>	<u>Percentage</u>
0-5 years	104	32.20%
6-10 years	67	20.74%
11-20 years	87	26.93%
20 years or more	49	15.17%
Unsure	6	1.86%
No Answer	10	3.10%
	<hr/> 323	<hr/> 100.00%





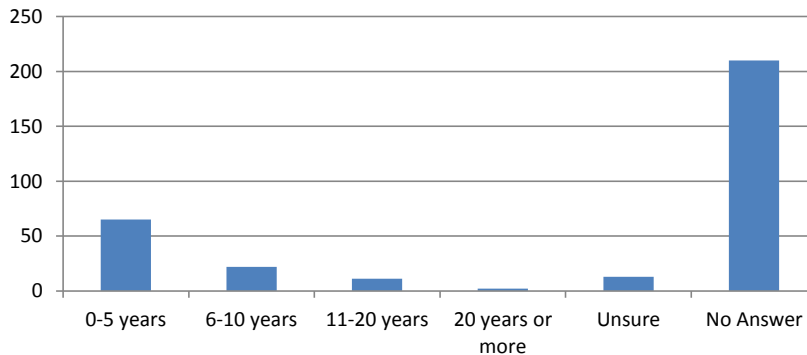
**Central Air Conditioner**

	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
0-5 years	87	26.93%
6-10 years	62	19.20%
11-20 years	78	24.15%
20 years or more	26	8.05%
Unsure	7	2.17%
No Answer	63	19.50%
	<b>323</b>	<b>100.00%</b>



**Room Air Conditioner**

	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
0-5 years	65	20.12%
6-10 years	22	6.81%
11-20 years	11	3.41%
20 years or more	2	0.62%
Unsure	13	4.02%
No Answer	210	65.02%
	<b>323</b>	<b>100.00%</b>

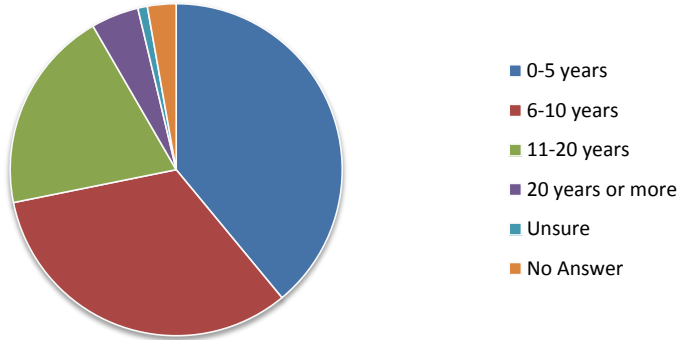






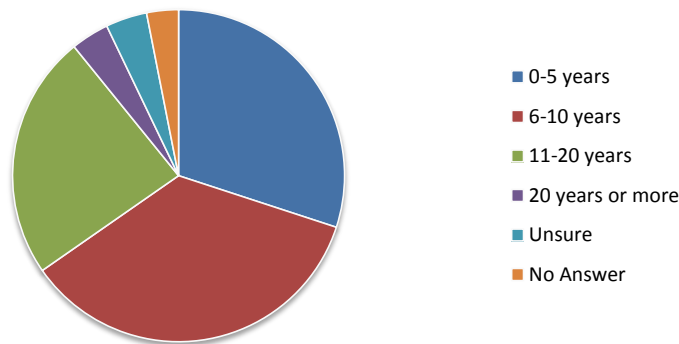
**Main Refrigerator**

	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
0-5 years	126	39.01%
6-10 years	106	32.82%
11-20 years	64	19.81%
20 years or more	15	4.64%
Unsure	3	0.93%
No Answer	9	2.79%
	<hr/> 323	<hr/> 100.00%



**Water Heater**

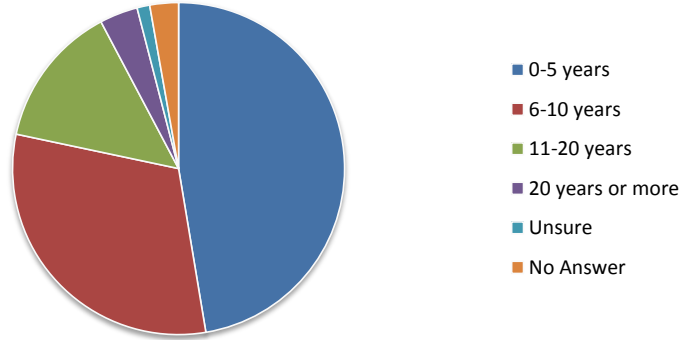
	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
0-5 years	97	30.03%
6-10 years	114	35.29%
11-20 years	77	23.84%
20 years or more	12	3.72%
Unsure	13	4.02%
No Answer	10	3.10%
	<hr/> 323	<hr/> 100.00%





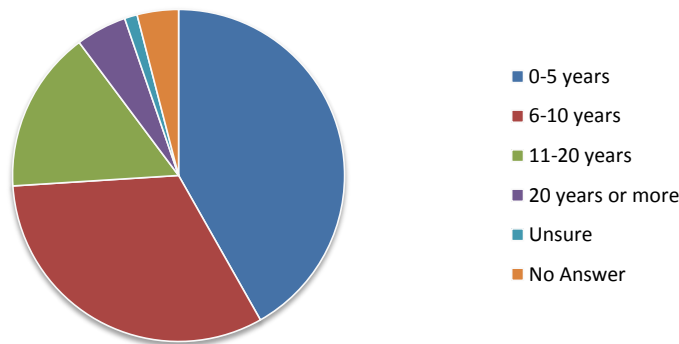
**Clothes Washer**

	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
0-5 years	153	47.37%
6-10 years	100	30.96%
11-20 years	45	13.93%
20 years or more	12	3.72%
Unsure	4	1.24%
No Answer	9	2.79%
	<hr/> 323	<hr/> 100.00%



**Clothes Dryer**

	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
0-5 years	135	41.80%
6-10 years	104	32.20%
11-20 years	51	15.79%
20 years or more	16	4.95%
Unsure	4	1.24%
No Answer	13	4.02%
	<hr/> 323	<hr/> 100.00%

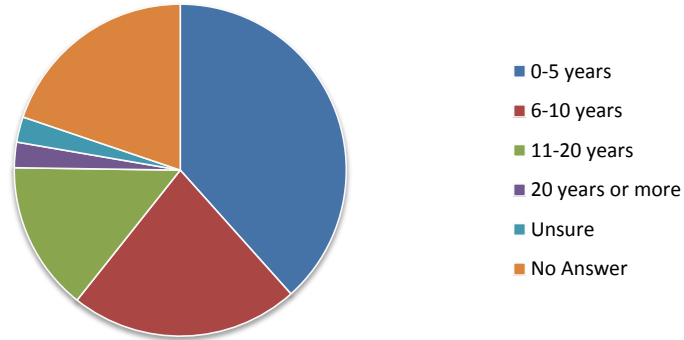




**Dishwasher**

0-5 years  
6-10 years  
11-20 years  
20 years or more  
Unsure  
No Answer

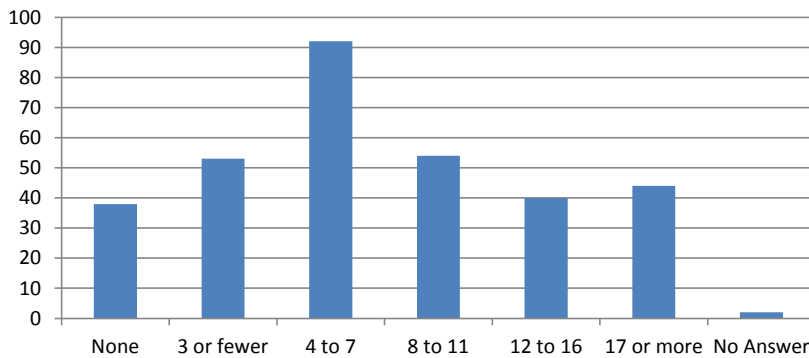
<b><u>Responses</u></b>	<b><u>Percentage</u></b>
124	38.39%
72	22.29%
47	14.55%
8	2.48%
8	2.48%
64	19.81%
<hr/> 323	<hr/> 100.00%



**Energy Efficient Lighting and Conservation Measures**

29. How many compact fluorescent (CFL) light bulbs are in your home? CHECK ONE.

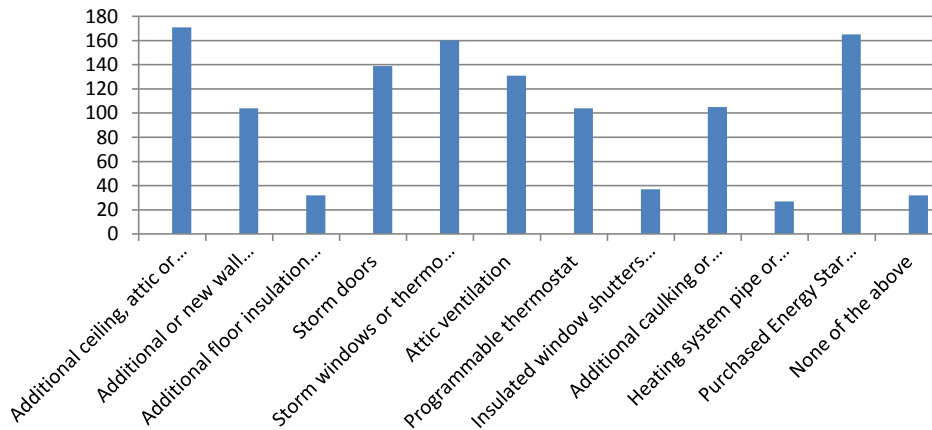
	<u>Responses</u>	<u>Percentage</u>
None	38	11.76%
3 or fewer	53	16.41%
4 to 7	92	28.48%
8 to 11	54	16.72%
12 to 16	40	12.38%
17 or more	44	13.62%
No Answer	2	0.62%
	<hr/> 323	<hr/> 100.00%





**30. Which of the following conservation measures have been made to your home?  
CHECK ALL THAT APPLY.**

	<u>Responses</u>	<u>Percentage</u>
Additional ceiling, attic or room insulation	171	14.17%
Additional or new wall insulation	104	8.62%
Additional floor insulation (below lowest floor lived in)	32	2.65%
Storm doors	139	11.52%
Storm windows or thermo pane windows	160	13.26%
Attic ventilation	131	10.85%
Programmable thermostat	104	8.62%
Insulated window shutters or shades	37	3.07%
Additional caulking or weather-stripping	105	8.70%
Heating system pipe or duct insulation	27	2.24%
Purchased Energy Star appliances	165	13.67%
None of the above	32	2.65%
	1207	100.00%

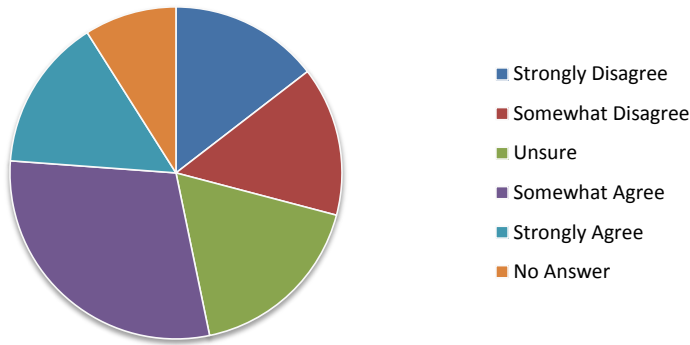


**What Do You Think?**

31. How do you feel about the following statements? CHECK ONE PER ROW.

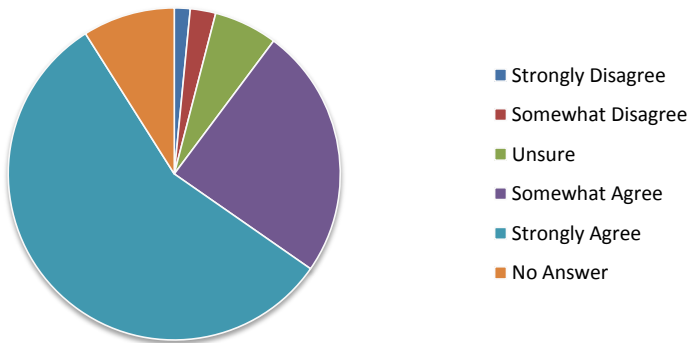
**The long term threat from global warming/ global climate change is serious.**

	<u>Responses</u>	<u>Percentage</u>
Strongly Disagree	47	14.55%
Somewhat Disagree	47	14.55%
Unsure	57	17.65%
Somewhat Agree	95	29.41%
Strongly Agree	48	14.86%
No Answer	29	8.98%
	<hr/> 323	<hr/> 100.00%



**The long term threat from our dependence on foreign energy sources is serious.**

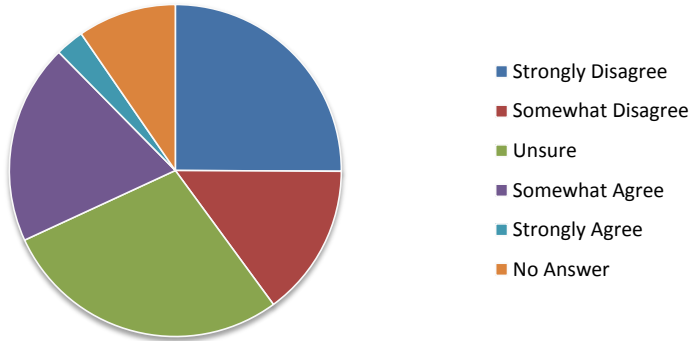
	<u>Responses</u>	<u>Percentage</u>
Strongly Disagree	5	1.55%
Somewhat Disagree	8	2.48%
Unsure	20	6.19%
Somewhat Agree	79	24.46%
Strongly Agree	182	56.35%
No Answer	29	8.98%
	<hr/> 323	<hr/> 100.00%





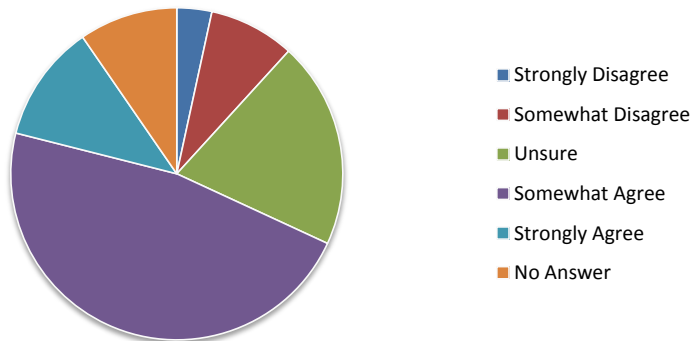
**I trust environmental organizations, such as the Sierra Club or Greenpeace, to give me dependable information on how to optimize my energy use.**

	<u>Responses</u>	<u>Percentage</u>
Strongly Disagree	81	25.08%
Somewhat Disagree	48	14.86%
Unsure	91	28.17%
Somewhat Agree	63	19.50%
Strongly Agree	9	2.79%
No Answer	31	9.60%
	<hr/> 323	<hr/> 100.00%



**I trust academic or scientific organizations, such as researchers at a major University, to give me dependable information on how to optimize my energy use.**

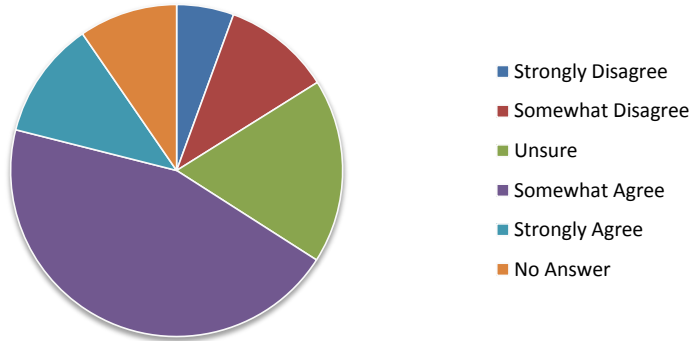
	<u>Responses</u>	<u>Percentage</u>
Strongly Disagree	11	3.41%
Somewhat Disagree	27	8.36%
Unsure	65	20.12%
Somewhat Agree	152	47.06%
Strongly Agree	37	11.46%
No Answer	31	9.60%
	<hr/> 323	<hr/> 100.00%





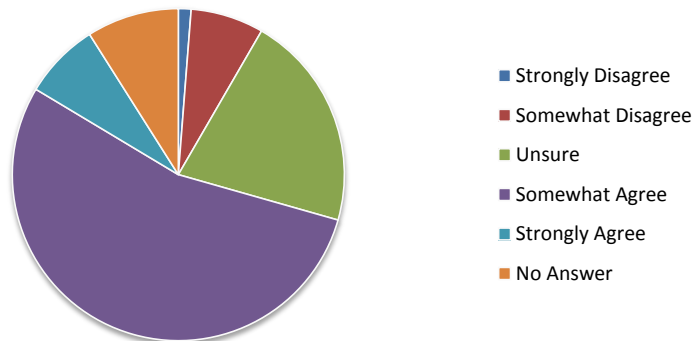
**I trust government/public sources, such as the Department of Energy or my local municipality, to give me dependable information on how to optimize my energy use.**

	<u>Responses</u>	<u>Percentage</u>
Strongly Disagree	18	5.57%
Somewhat Disagree	34	10.53%
Unsure	58	17.96%
Somewhat Agree	145	44.89%
Strongly Agree	37	11.46%
No Answer	31	9.60%
	<hr/> 323	<hr/> 100.00%



**I trust electrical appliance manufacturers/retailers, such as GE or Sears, to give me dependable information on how to optimize my energy use.**

	<u>Responses</u>	<u>Percentage</u>
Strongly Disagree	4	1.24%
Somewhat Disagree	23	7.12%
Unsure	68	21.05%
Somewhat Agree	175	54.18%
Strongly Agree	24	7.43%
No Answer	29	8.98%
	<hr/> 323	<hr/> 100.00%

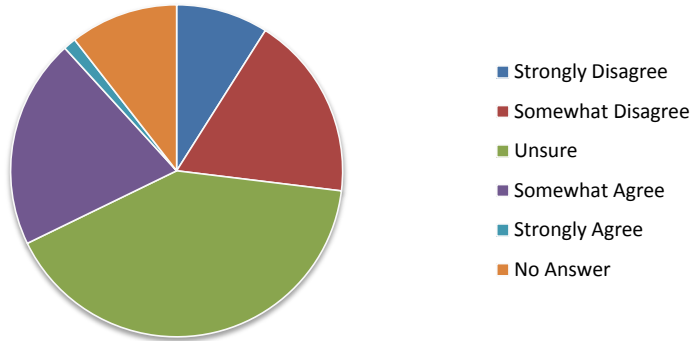






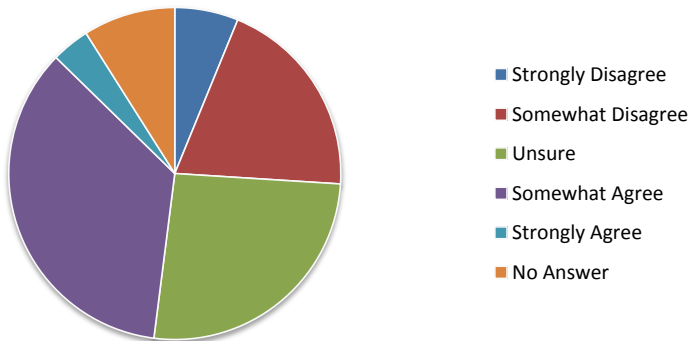
**I trust online sources, such as a blog or online discussion forum, to give me dependable information on how to optimize my energy use.**

	<u>Responses</u>	<u>Percentage</u>
Strongly Disagree	29	8.98%
Somewhat Disagree	58	17.96%
Unsure	132	40.87%
Somewhat Agree	66	20.43%
Strongly Agree	4	1.24%
No Answer	34	10.53%
	<hr/> 323	<hr/> 100.00%



**I trust daily newspapers and the nightly news to give me dependable information on how to optimize my energy use.**

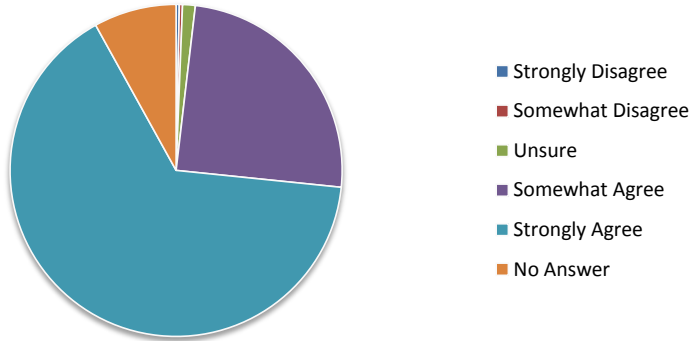
	<u>Responses</u>	<u>Percentage</u>
Strongly Disagree	20	6.19%
Somewhat Disagree	64	19.81%
Unsure	84	26.01%
Somewhat Agree	114	35.29%
Strongly Agree	12	3.72%
No Answer	29	8.98%
	<hr/> 323	<hr/> 100.00%





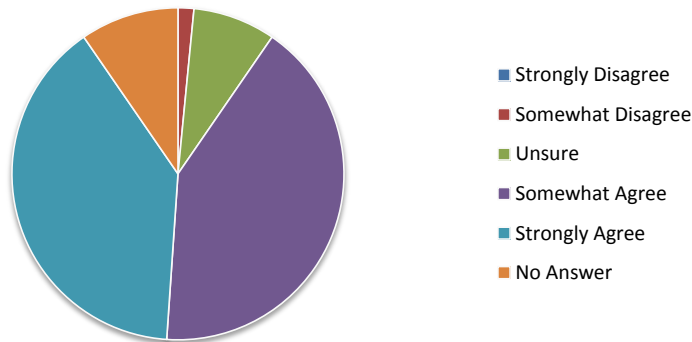
**Everyone should make a real effort to conserve energy.**

	<u>Responses</u>	<u>Percentage</u>
Strongly Disagree	1	0.31%
Somewhat Disagree	1	0.31%
Unsure	4	1.24%
Somewhat Agree	80	24.77%
Strongly Agree	211	65.33%
No Answer	26	8.05%
	<hr/> 323	<hr/> 100.00%



**I regularly pay attention to energy related issues because they affect me directly, no just our country.**

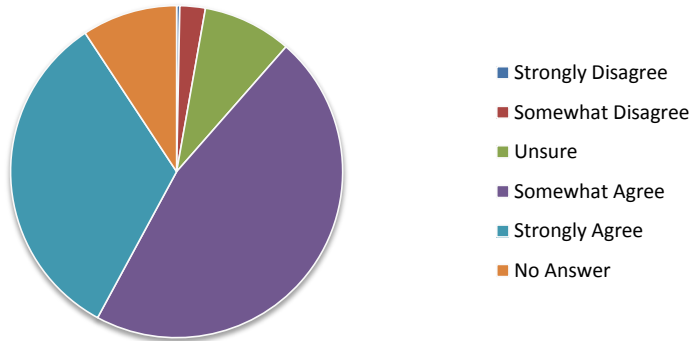
	<u>Responses</u>	<u>Percentage</u>
Strongly Disagree	0	0.00%
Somewhat Disagree	5	1.55%
Unsure	26	8.05%
Somewhat Agree	134	41.49%
Strongly Agree	127	39.32%
No Answer	31	9.60%
	<hr/> 323	<hr/> 100.00%





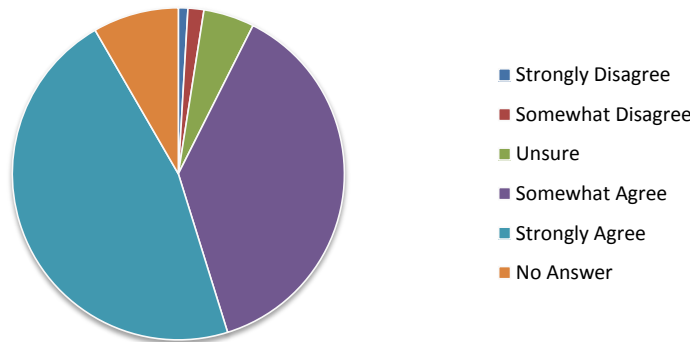
**I have sought ways to reduce my energy use in order to do what I can to protect the environment.**

	<u>Responses</u>	<u>Percentage</u>
Strongly Disagree	1	0.31%
Somewhat Disagree	8	2.48%
Unsure	28	8.67%
Somewhat Agree	150	46.44%
Strongly Agree	106	32.82%
No Answer	30	9.29%
	<hr/> 323	<hr/> 100.00%



**I have sought ways to reduce my energy use so that I can have a lower bill.**

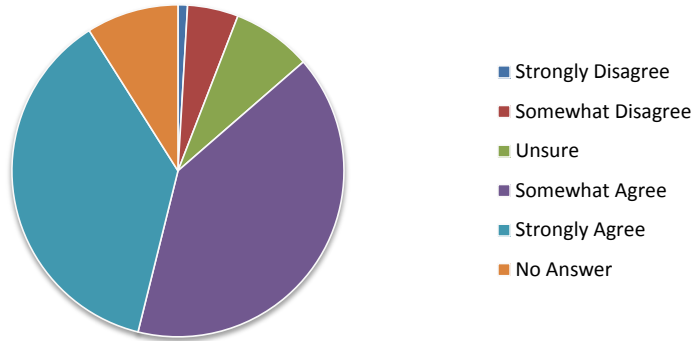
	<u>Responses</u>	<u>Percentage</u>
Strongly Disagree	3	0.93%
Somewhat Disagree	5	1.55%
Unsure	16	4.95%
Somewhat Agree	122	37.77%
Strongly Agree	150	46.44%
No Answer	27	8.36%
	<hr/> 323	<hr/> 100.00%





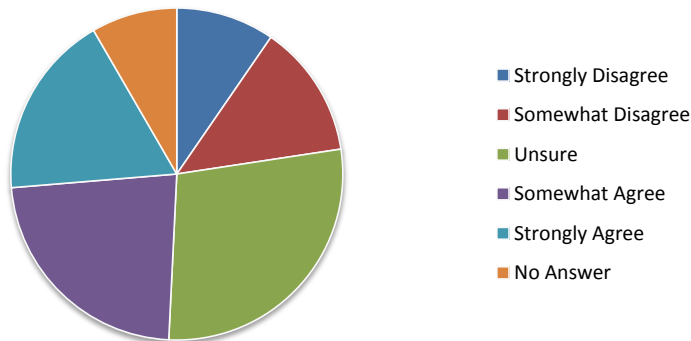
**I monitor my home's energy use by reviewing my energy bill on a monthly basis.**

	<u>Responses</u>	<u>Percentage</u>
Strongly Disagree	3	0.93%
Somewhat Disagree	16	4.95%
Unsure	25	7.74%
Somewhat Agree	130	40.25%
Strongly Agree	120	37.15%
No Answer	29	8.98%
	<hr/> 323	<hr/> 100.00%



**Consumers who use too much energy should pay higher rates as an incentive to conserve more.**

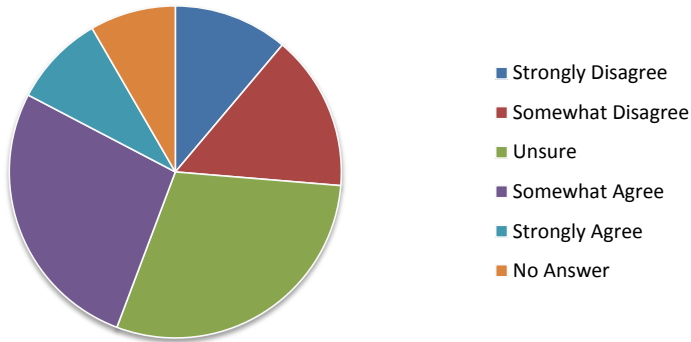
	<u>Responses</u>	<u>Percentage</u>
Strongly Disagree	31	9.60%
Somewhat Disagree	42	13.00%
Unsure	91	28.17%
Somewhat Agree	74	22.91%
Strongly Agree	58	17.96%
No Answer	27	8.36%
	<hr/> 323	<hr/> 100.00%





**I would be willing to pay a little more on my monthly electricity bill for "green" energy that comes from renewable sources.**

	<u>Responses</u>	<u>Percentage</u>
Strongly Disagree	36	11.15%
Somewhat Disagree	49	15.17%
Unsure	95	29.41%
Somewhat Agree	87	26.93%
Strongly Agree	29	8.98%
No Answer	27	8.36%
	<hr/>	
	323	100.00%



**Comments**

1. On Social Security very Hard to live. I well soon only have Social Security. \$870 per month.
2. Use water source heat pump and air conditioning. Built energy efficient Enucept home in 1983. Added additional storm windows to thermal pane windows
3. retired, colleter car Hobby shop
4. lost my Job in 09 - Back to a Job - 10 - \$4 per Hr less - Hard to Keep on top - Would like to maKe this House more efficent During Winter months
5. We are putting up a new home this summer expected completion daet is Sept
6. Please tell us when the best time is to wash cloths Bake + Run dishwasher! if we Know - we can help-
7. I "Think" (Believe), that I "Live" - Very Energy Efficient! Exp - Closing Doors ASAP! - Ref. Door ASAS! -Lights "on" - only when Needed! etc.
8. new furnace - 2010
9. Ve feel we should be getting a bigger discount because of all our electrical appliances 1-80 gal electric water heater 2&3- basebord heaters electric stove + our electric washer + dryer other small elc. appliances
10. our high energy use is in the hog barn mostly in summer months
11. vinal siding on House.



12. Home owned and used approx 3 days per month by estate + heirs of. Prefer not to participate due to request use.
13. we do not want to participate in the program thanks
14. Our electric bills are to high. Global warming is a crock of \_\_ . Who is to decide how much energy is to much.
15. Regarding #16, secondary system: we have electric heating under a porcelain tile floor downstairs. Not sure whether you'd consider that a secondary system or not. We are very happy and pleased to have Sioux Valley Energy as our electric power provider. You do a great job!
16. nle nave an additional home on our property which is on the same meter as our home, it is occupied by a single female (age 79-40). it YOU need more information regarding mat occupant andlor home we can certainly supply YOU with that information.'
17. No one lives in this cabin for at least half the year #7-
18. Where will they put the internal data recording - in house or outside? If inside then where?
19. I did not answer the questions that were no ones business
20. we don't like CFL light bulbs. They don't last nearly as long as they say and very bad for the environment when disposing after they've burned out. NOT a good product!
21. Our Electric usage is much more than just a house. It is a farm. Renewable energy doesn't have to cost more. Our house is cooled with a water to air Geo system, not really AC.



22. We have several hog farms, an on farm feed mill, and corn dryers - our house useage is a small part of our total energy useage. Jim Veldkamp
  
23. 1 NEW cement siding 2 New windows 3 Marathon water heater 4 heat pump with electric heat duct heaters for secondary heat
  
24. To High Priced
  
25. Secondary heat source is in floor heat w/elec boiler
  
26. I use the furnace fan in summer for cooling. keep sun out with shades.
  
27. My house was built with 2"X6" construction with extra insulation on outside walls + attic
  
28. This facility is a large daily operation that has mobile homes on the campus.
  
29. We live in an energy efficient monolithic Dome home with in-floor hydronic heat from electric tankless water heaters x2. We heat over 4000 sq/ft home with these 2-11 kW tankless water heaters. Our air-conditioner mostly acts as a dehumidifier.
  
30. Natural gas + coal are still our Best sources also hydro elect poewr ground water too if you're young enough to pay for it long term
  
31. We are interested in solar energy - would like to find a reliable source.
  
32. We actually have 3 sources of heat. 1 Cork pellet stove. 2 wood burners. 3 Gas propane stove
  
33. This survey concerns more to houses not farms. Who have a different electric use.





34. The water here is quit high now + I have had 35 temp per mps going for cler w year. I though with the increase consumption of electric use some one should have checked my usage! Could be growing pot
35. Sure hope our coop gets into more wind energy around here in the near future. Have programs to help people learn more about wind + solar construction.
36. We have a modular home on a basement - 6" walls exterior. Gas heat basically upstairs - electric heat downstairs - we use all of our space for living we just went from 4 people to 3 people living here.
37. We have an old home but it is all re-sided insulated. New windows and insulation addition is all 2x6 walls totally insulated
38. maybe run more electric their control panel so we don't use elect during peak hours
39. #30 - we remodeled, insulated and updated our home over years. Nothing major done since 1998 when my husband died just "up Keep" comfortable home.
40. Home was built New in 2003 any "additional" insulation was built-in into original specs
41. I'm not sure this is a good trial site for you. When you have a critical need period is when we need the most power to keep hogs alive.
42. Green Energy Sources Cost up more. The only people that benefit are the ones owning it and get the government subsidies! A pile of Crap!
43. Single family w/ mother-in-law apartment trying to get more shed for summer heat



44. this program sounds great
  
45. House built in 1909-need many repairs. Because I rent it hasn't had any updates (Insulation - windows etc). Have no A.C. because old wiring - afraid of fire so can't regulate summer temp - tets into mid 80's with high humidity een with dehumidifier which I can't afford to run 24/7. Heater is very old gas wall heater. Work part time (question #8) so not home every day, other days usually outside.
  
46. It would be nice to be able to heat more than the kitched area - And the 1-bedroom upstairs you have to walk through cold to get to warm
  
47. We have low voltage switches
  
48. I think this is a great idea + am interested to see the results. I wish we had more time to implement this.
  
49. We use a sump pump to carry out the water from our washer when in use.
  
50. We run in-floor heat in the garage with an electric boiler system. Loft in garage is cooled and heated with central air/force heat furnace.
  
51. #31 I do not feel any of these organizations can be trusted because public or private they all have an agenda
  
52. Do you have information on solar heat panels?

**Appendix C**  
**EmPOWER Post-Pilot Survey**



## EMPOWER SURVEY YOUR HOME & YOU



Field for Unique Identifier (Customer Account Number)

**Instructions:** Using ink, please complete the following questions to the best of your ability by shading the bubbles:

**Like this**



**Not like this**



**Errors** should be clearly crossed out and the correct response marked as normal:

**Cross out**



**re-mark**



Please return the completed survey using the provided postage-paid envelope.

### All Information Is Confidential

Information provided will be confidential and will not be used for any other purpose than for analysis of Sioux Valley Energy's Critical Peak Pricing Program.

1. During peak events, to what extent did you modify your use of the following? **Check one per appliance:**

	Not at all		Some-what		Signifi- cantly
Air conditioning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Refrigerator	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clothes dryer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clothes Washer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dishwasher	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Microwave	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hot Water Consumption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stove	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lights	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Television	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Computer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pool Pump	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other:

2. How often did you forget the peak event was taking place in spite of the notification? **Check one:**

Never	<input type="radio"/>	<input type="radio"/>	Sometimes	<input type="radio"/>	<input type="radio"/>	Very Frequently	<input type="radio"/>
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3. How was your household notified about peak events? **Check all that apply:**

<input type="radio"/> Email	<input type="radio"/> Text message
<input type="radio"/> In home display	<input type="radio"/> Phone call

4. Which notification method does your household prefer?

**Check one per option:**

	Don't like		Unsure		Strongly prefer
Email	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In home display	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Text message	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Phone call	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please specify another option you'd prefer:

5. On a scale of 1-5 (with 1 being your most preferred notification window), please rank each of the following event notification horizons. **Use each rank ONLY ONCE.**

<input type="text"/>	1 hour before the event.	<b>1 = Most Preferred</b>
<input type="text"/>	4 hours before the event.	<b>2</b>
<input type="text"/>	Morning of the event.	<b>3</b>
<input type="text"/>	Day before the event.	<b>4</b>
<input type="text"/>	More than 1 day before the event.	<b>5 = Least Preferred</b>

6. **Yes or no**, did the program prompt you to install:

	Yes	No
An in-home display device	<input type="radio"/>	<input type="radio"/>
Compact fluorescent bulbs	<input type="radio"/>	<input type="radio"/>
An energy efficient appliance	<input type="radio"/>	<input type="radio"/>
A new air conditioning unit	<input type="radio"/>	<input type="radio"/>
A programmable thermostat	<input type="radio"/>	<input type="radio"/>

7. **Yes or no**, if the program were to continue would you seek lower usage by installing any of the following?

	Yes	No
An in-home display device	<input type="radio"/>	<input type="radio"/>
Compact fluorescent bulbs	<input type="radio"/>	<input type="radio"/>
An energy efficient appliance	<input type="radio"/>	<input type="radio"/>
A new air conditioning unit	<input type="radio"/>	<input type="radio"/>
A programmable thermostat	<input type="radio"/>	<input type="radio"/>

8. Are you interested in continued participation in this program? **Check one:**

Not interested at all	<input type="radio"/>	<input type="radio"/>	Somewhat interested	<input type="radio"/>	<input type="radio"/>	Highly interested	<input type="radio"/>
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9. Would you recommend this type of program to others?

**Check one:**

I would recommend against	<input type="radio"/>	<input type="radio"/>	Undecided	<input type="radio"/>	<input type="radio"/>	I would highly recommend	<input type="radio"/>
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10. In anticipation of a peak event, did the program cause you to do any of the following? **Check one per option:**

	Never		Sometimes		Very Often
Pre-cool your home	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cook earlier or later	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Grill to stay out of the kitchen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do laundry at a different time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use dishwasher at a different time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leave the residence to minimize usage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. Since June 1 have you made any of the following changes that would impact energy use? **Check one per option:**

	Yes	No
Added square footage to your home	<input type="radio"/>	<input type="radio"/>
Replaced your home's windows/doors	<input type="radio"/>	<input type="radio"/>
Added additional insulation	<input type="radio"/>	<input type="radio"/>

Other:

12. Has your family size changed since June 1 due to any of the following? **Check one per option:**

	Yes	No
Grown due to a new baby	<input type="radio"/>	<input type="radio"/>
Grown due to children moving home	<input type="radio"/>	<input type="radio"/>
Shrunk due to children leaving home	<input type="radio"/>	<input type="radio"/>
Shrunk due to an elderly adult leaving home	<input type="radio"/>	<input type="radio"/>

Other:

13. Based on your experience in the program, would you recommend any of the following changes? **Check one per option:**

	I Do Not recommend this change		Maybe		I Highly recommend this change
Energy prices during peak events should be higher to discourage energy use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energy prices during peak events should be lower to make events less expensive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Notifications should be sent earlier for more advance notice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Notifications should be sent later to prevent forgetting the event	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. Did this program result in a higher or lower utility bill? **Check one:**

My bill was significantly lower	<input type="radio"/>	<input type="radio"/>	My bill was the same	<input type="radio"/>	<input type="radio"/>	My bill was significantly higher	<input type="radio"/>
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15. How important were the following factors in your decision to modify behavior? **Check one per option:**

	Not at all		Some-what		Extremely
Lower electric bill	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental impact	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Help my coop save money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. Please indicate how many persons live in this household and if there was any reluctance to participate in this program? **Check one per option:**

	# in the home	No reluctance		Some		Significant reluctance
Spouse	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Small child	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teenage child	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Grown child	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Elderly resident	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. Were you caused any of the following because of program participation? **Check one per choice:**

	None		Some-what		Major
Physical discomfort	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inconvenience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dissatisfaction with your electricity co-op	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. How satisfied were you with the results from this program with respect to the following? **Check one per option:**

	Extremely Dissatisfied		Undecided		Extremely Satisfied
Electric bill savings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energy use reduction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental impact	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The overall program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. After participating in the program this summer, do you have any comments or suggestions for us?

**Thank you for your program participation and taking some time to complete this survey.**

**Appendix D**  
**EmPOWER Post-Pilot Survey**  
**Compilation Report**

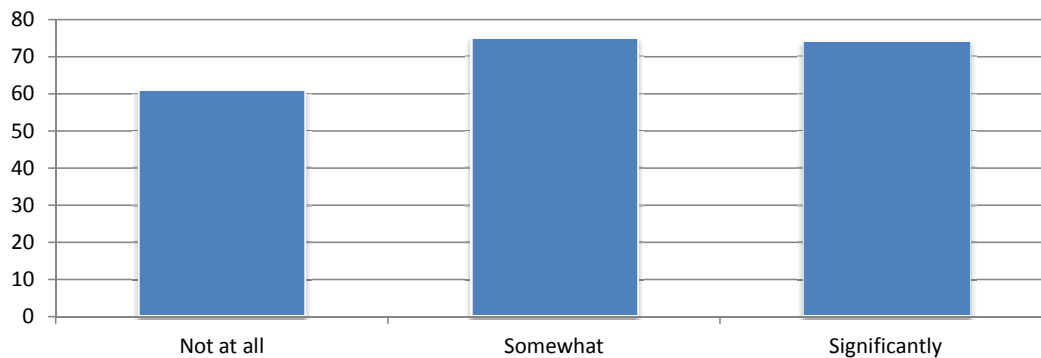
## EMPower Post-Pilot Survey

### Your Home and You

1 During peak events, to what extent did you modify your use of the following? Check one per appliance:

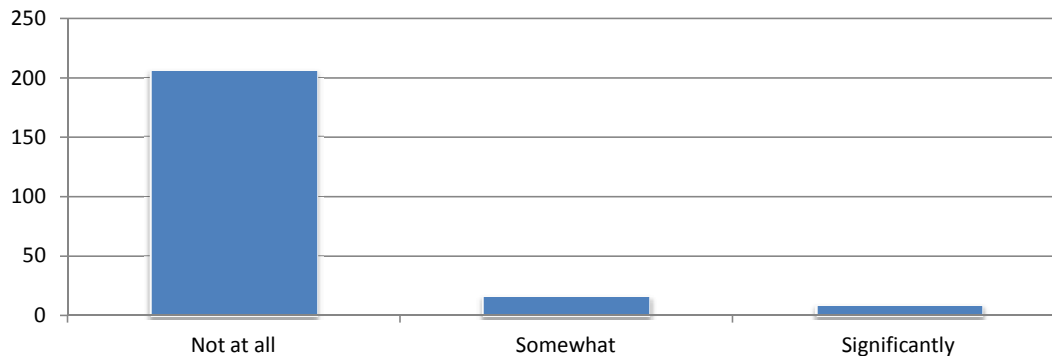
a. **Air conditioner**

	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
Not at all	61	29.05%
Somewhat	75	35.71%
Significantly	74	35.24%
	<b>210</b>	<b>100.00%</b>



b. **Refrigerator**

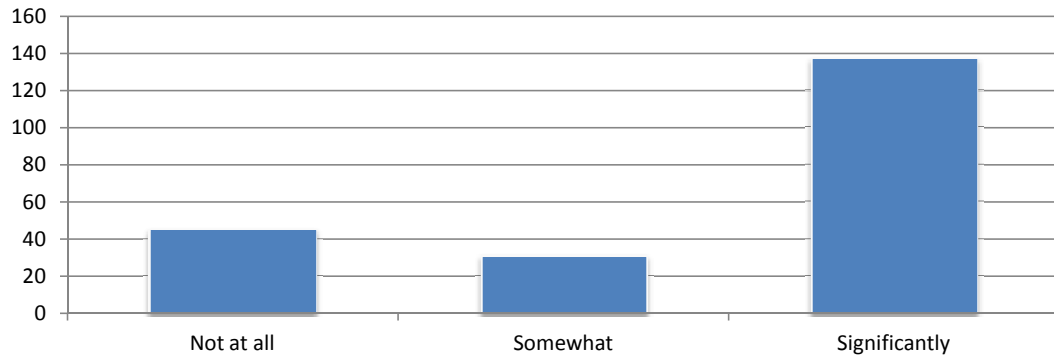
	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
Not at all	206	89.18%
Somewhat	16	6.93%
Significantly	9	3.90%
	<b>231</b>	<b>100.00%</b>





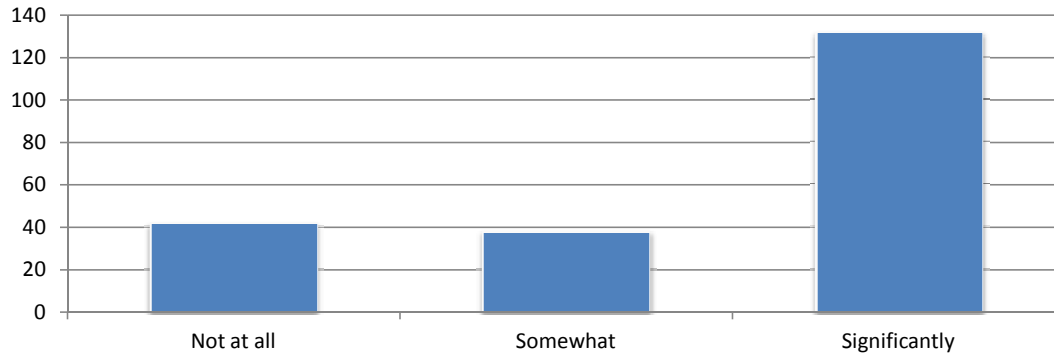
**c. Clothes Dryer**

	<u>Responses</u>	<u>Percentage</u>
Not at all	45	21.13%
Somewhat	31	14.55%
Significantly	137	64.32%
	<hr/> 213	<hr/> 100.00%



**d. Clothes Washer**

	<u>Responses</u>	<u>Percentage</u>
Not at all	42	19.81%
Somewhat	38	17.92%
Significantly	132	62.26%
	<hr/> 212	<hr/> 100.00%

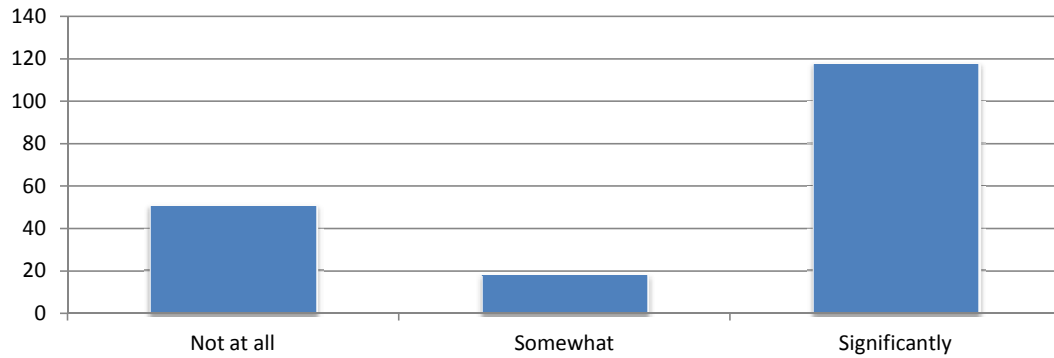






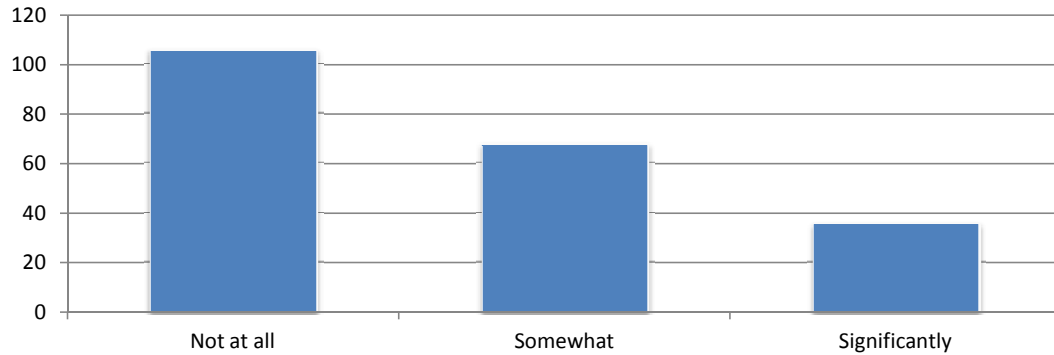
**e. Dishwasher**

	<u>Responses</u>	<u>Percentage</u>
Not at all	51	27.27%
Somewhat	18	9.63%
Significantly	118	63.10%
	187	100.00%



**f. Microwave**

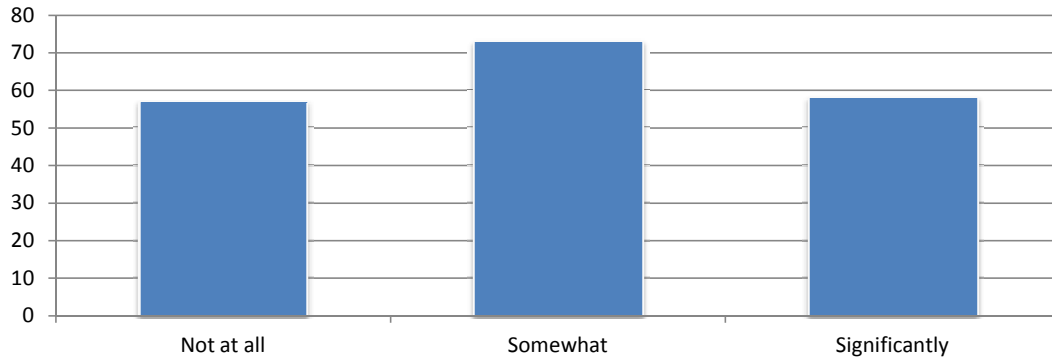
	<u>Responses</u>	<u>Percentage</u>
Not at all	106	50.48%
Somewhat	68	32.38%
Significantly	36	17.14%
	210	100.00%





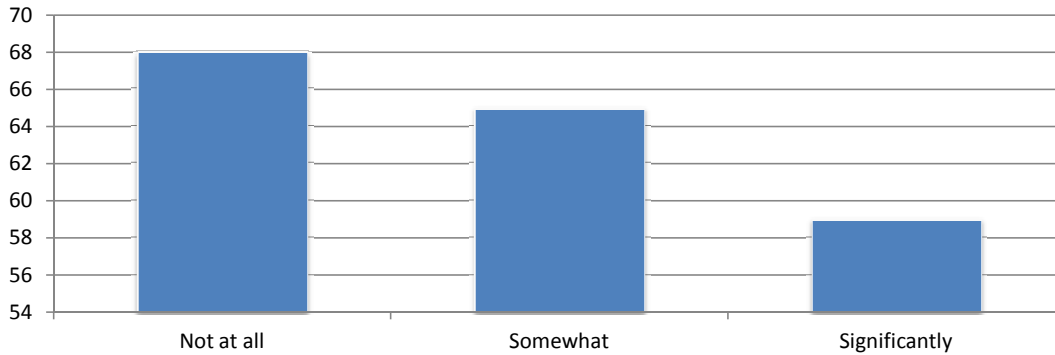
**g. Hot Water Consumption**

	<u>Responses</u>	<u>Percentage</u>
Not at all	57	30.32%
Somewhat	73	38.83%
Significantly	58	30.85%
	<hr/> 188	<hr/> 100.00%



**h. Stove**

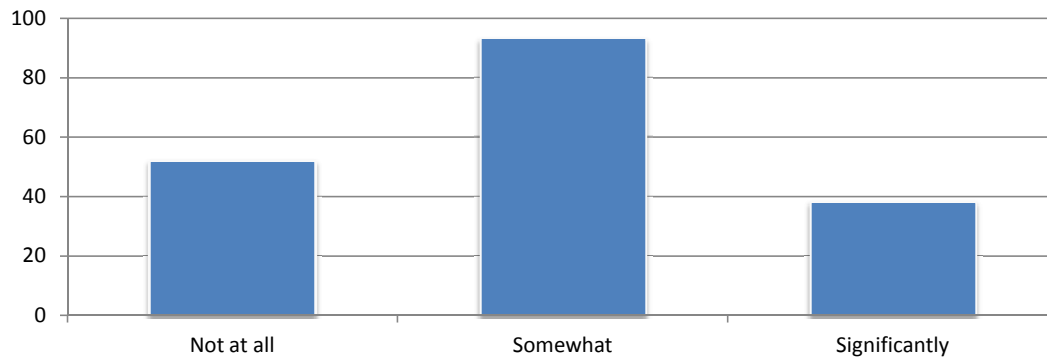
	<u>Responses</u>	<u>Percentage</u>
Not at all	68	35.42%
Somewhat	65	33.85%
Significantly	59	30.73%
	<hr/> 192	<hr/> 100.00%





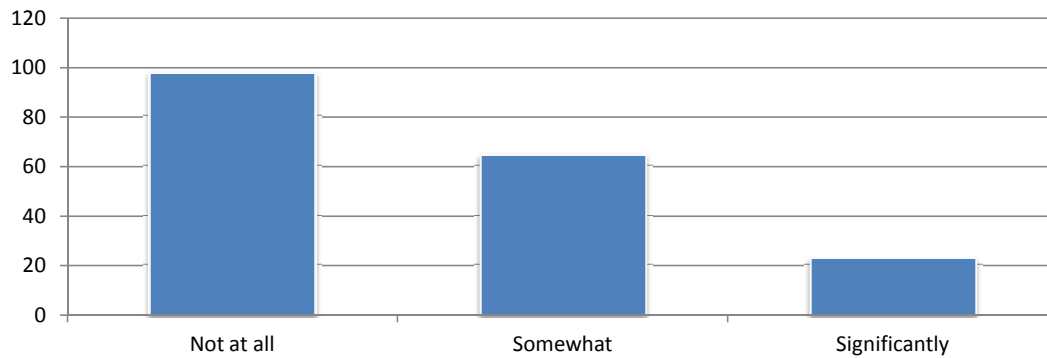
**i. Lights**

	<u>Responses</u>	<u>Percentage</u>
Not at all	52	28.42%
Somewhat	93	50.82%
Significantly	38	20.77%
	<hr/>	<hr/>
	183	100.00%



**j. Television**

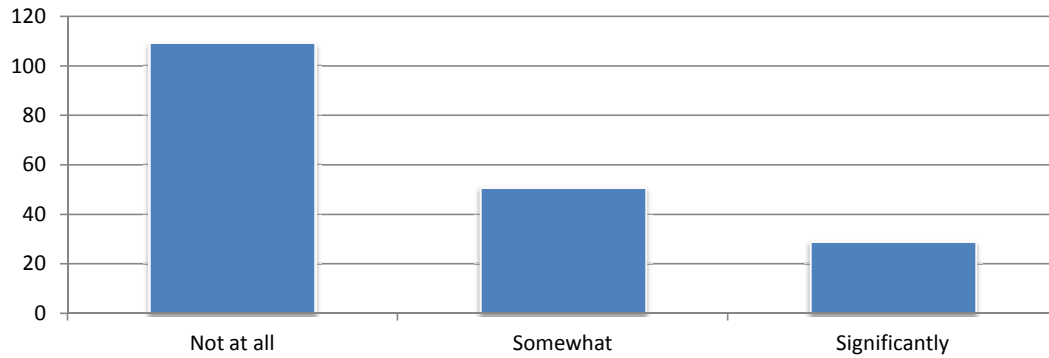
	<u>Responses</u>	<u>Percentage</u>
Not at all	98	52.69%
Somewhat	65	34.95%
Significantly	23	12.37%
	<hr/>	<hr/>
	186	100.00%





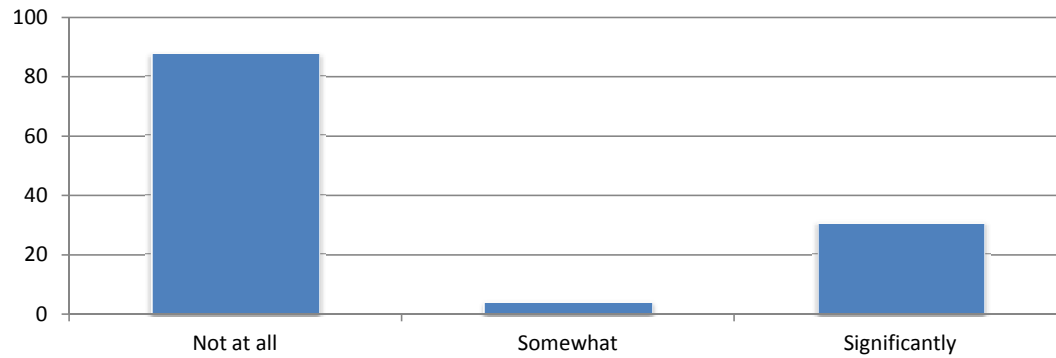
**k. Computer**

	<u>Responses</u>	<u>Percentage</u>
Not at all	109	57.67%
Somewhat	51	26.98%
Significantly	29	15.34%
	<hr/>	<hr/>
	189	100.00%



**l. Pool Pump**

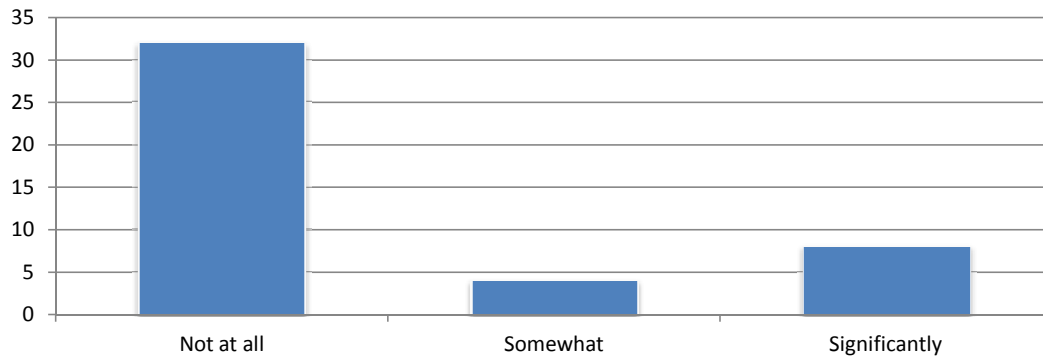
	<u>Responses</u>	<u>Percentage</u>
Not at all	88	71.54%
Somewhat	4	3.25%
Significantly	31	25.20%
	<hr/>	<hr/>
	123	100.00%





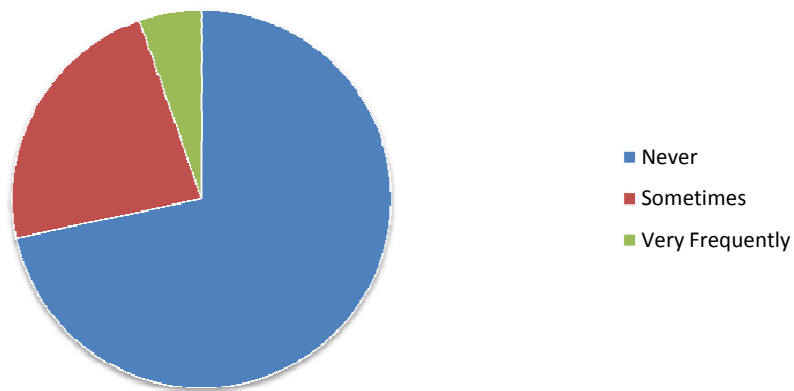
**m. Other**

	<u>Responses</u>	<u>Percentage</u>
Not at all	32	72.73%
Somewhat	4	9.09%
Significantly	8	18.18%
	<u>44</u>	<u>100.00%</u>



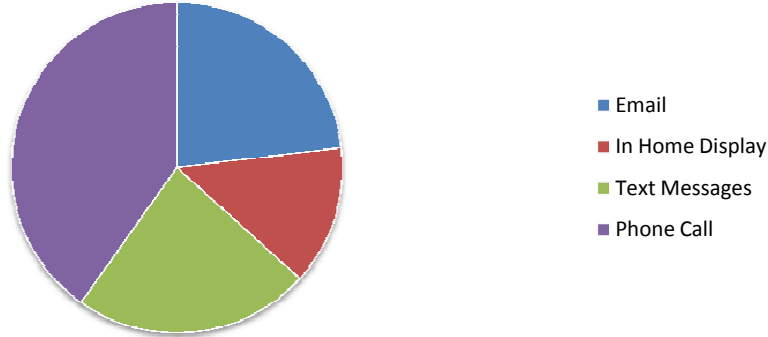
**2. How often did you forget the peak event was taking place in spite of the notification?  
CHECK ONE.**

	<u>Responses</u>	<u>Percentage</u>
Never	134	71.66%
Sometimes	43	22.99%
Very Frequently	10	5.35%
	<u>187</u>	<u>100.00%</u>



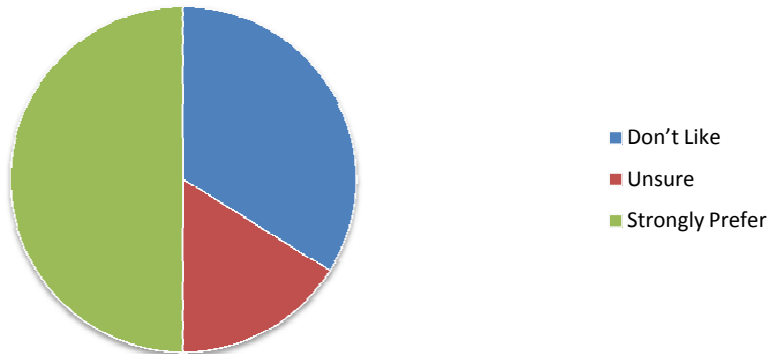
**3. How was your household notified about peak events? CHECK ALL THAT APPLY.**

	<u>Responses</u>	<u>Percentage</u>
Email	93	23.08%
In Home Display	55	13.65%
Text Messages	93	23.08%
Phone Call	162	40.20%
	<hr/> 403	<hr/> 100.00%


**4. Which notification method does you household prefer? CHECK ONE PER OPTION.**

a. **Email**

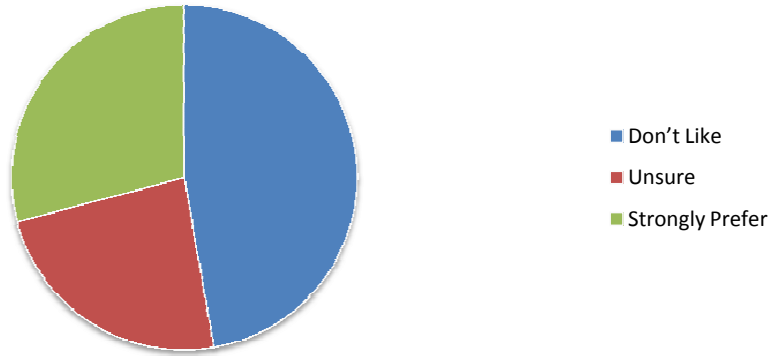
	<u>Responses</u>	<u>Percentage</u>
Don't Like	42	33.87%
Unsure	20	16.13%
Strongly Prefer	62	50.00%
	<hr/> 124	<hr/> 100.00%





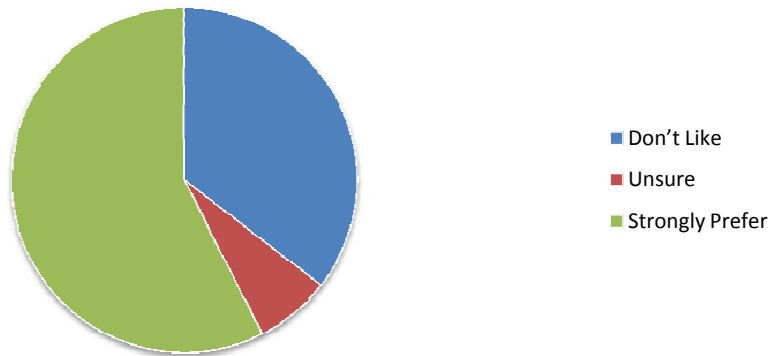
**b. In Home Display**

	<u>Responses</u>	<u>Percentage</u>
Don't Like	60	47.24%
Unsure	30	23.62%
Strongly Prefer	37	29.13%
	<hr/>	
	127	100.00%



**c. Text Message**

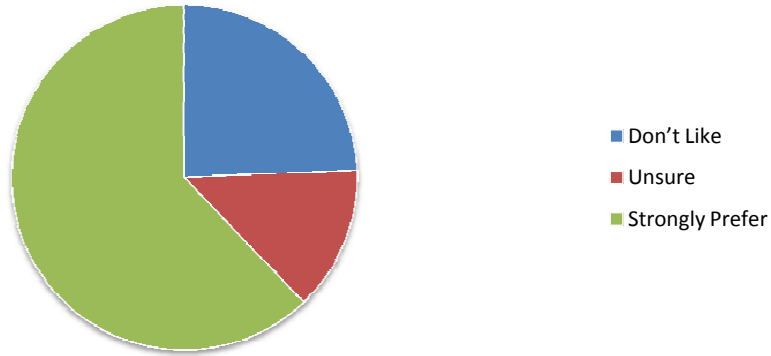
	<u>Responses</u>	<u>Percentage</u>
Don't Like	50	35.46%
Unsure	10	7.09%
Strongly Prefer	81	57.45%
	<hr/>	
	141	100.00%





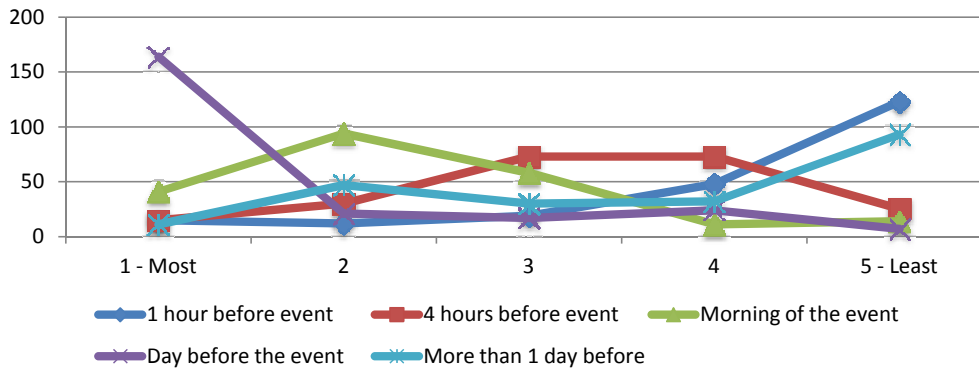
**d. Phone Call**

	<u>Responses</u>	<u>Percentage</u>
Don't Like	43	24.29%
Unsure	24	13.56%
Strongly Prefer	110	62.15%
	<u>177</u>	<u>100.00%</u>



**5. On a scale of 1-5 (with 1 being your most preferred notification window), please rank one of the following event notification horizons. USE EACH RANK ONLY ONCE.**

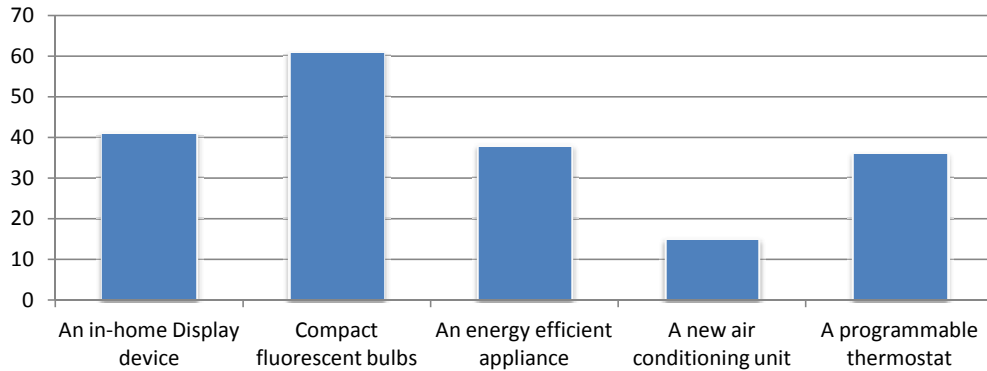
	<u>Responses</u>				
	<u>1 - Most</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5 - Least</u>
1 hour before event	15	12	19	48	123
4 hours before event	15	30	73	73	25
Morning of the event	41	94	58	11	14
Day before the event	164	21	17	24	7
More than 1 day before	11	47	30	32	93



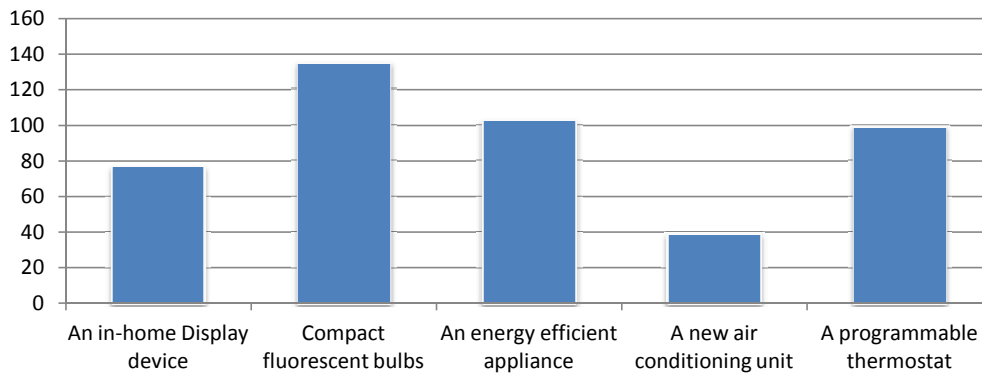


**6. Yes or No, did the program prompt you to install:**

	<b><u>Yes</u></b>	<b><u>No</u></b>
An in-home Display device	41	202
Compact fluorescent bulbs	61	181
An energy efficient appliance	38	202
A new air conditioning unit	15	227
A programmable thermostat	36	205

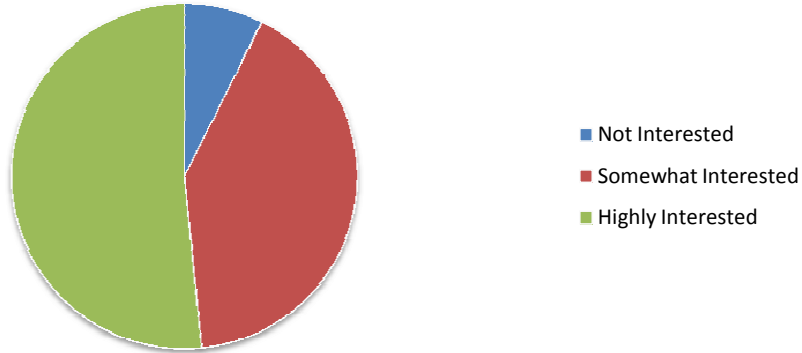

**7. Yes or No, if the program were to continue would you seek lower usage by installing any of the following?**

	<b><u>Yes</u></b>	<b><u>No</u></b>
An in-home Display device	77	147
Compact fluorescent bulbs	135	95
An energy efficient appliance	103	124
A new air conditioning unit	39	192
A programmable thermostat	99	130



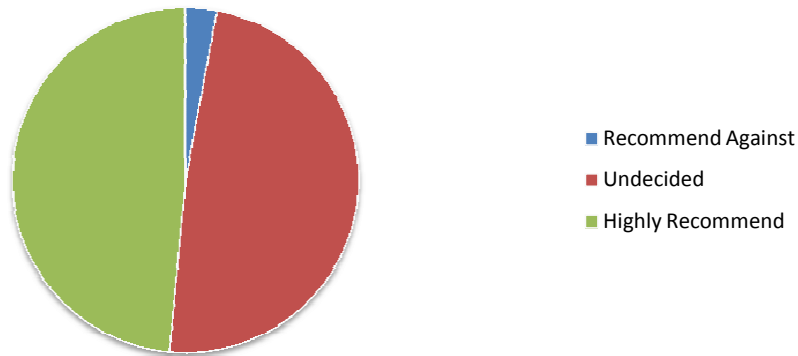
**8. Are you interested in continued participation in this program? CHECK ONE.**

	<u>Responses</u>	<u>Percentage</u>
Not Interested	14	7.37%
Somewhat Interested	78	41.05%
Highly Interested	98	51.58%
	<hr/> 190	<hr/> 100.00%



**9. Would you recommend this type of program to others? CHECK ONE.**

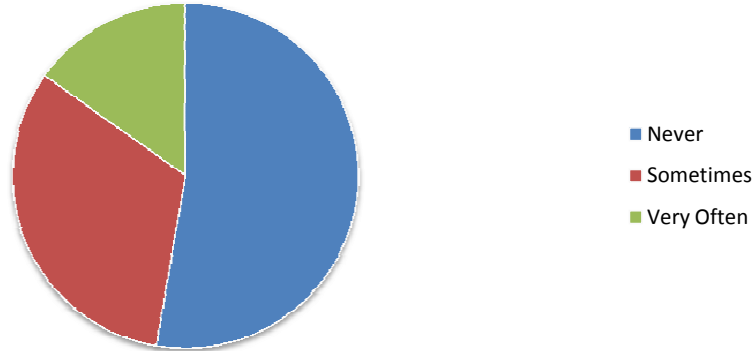
	<u>Responses</u>	<u>Percentage</u>
Recommend Against	5	2.92%
Undecided	83	48.54%
Highly Recommend	83	48.54%
	<hr/> 171	<hr/> 100.00%



**10. In anticipation of a peak event, did the program cause you to do any of the following?  
 CHECK ONE PER OPTION.**

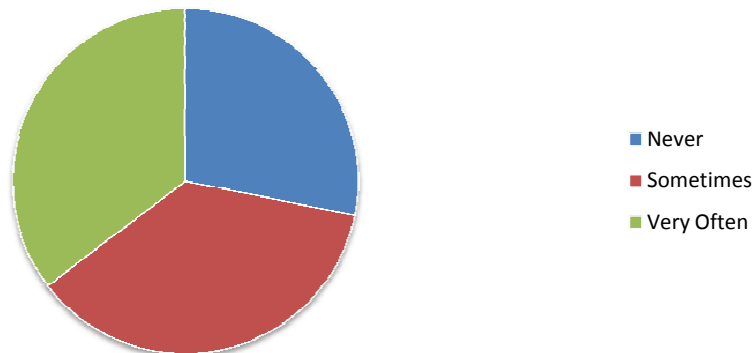
**a. Pre-cool your home**

	<u>Responses</u>	<u>Percentage</u>
Never	108	52.68%
Sometimes	66	32.20%
Very Often	31	15.12%
	<hr/> 205	<hr/> 100.00%



**b. Cook earlier or later**

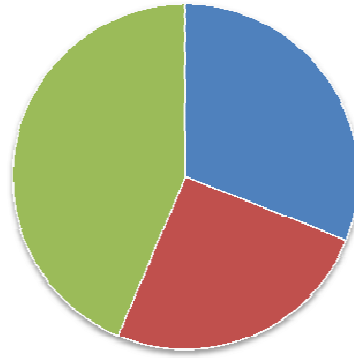
	<u>Responses</u>	<u>Percentage</u>
Never	55	28.21%
Sometimes	71	36.41%
Very Often	69	35.38%
	<hr/> 195	<hr/> 100.00%





**c. Grill to stay out of the kitchen**

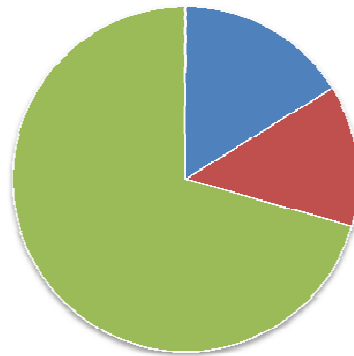
	<u>Responses</u>	<u>Percentage</u>
Never	61	30.96%
Sometimes	50	25.38%
Very Often	86	43.65%
	<hr/> 197	<hr/> 100.00%



- Never
- Sometimes
- Very Often

**d. Do laundry at a different time**

	<u>Responses</u>	<u>Percentage</u>
Never	33	16.18%
Sometimes	27	13.24%
Very Often	144	70.59%
	<hr/> 204	<hr/> 100.00%

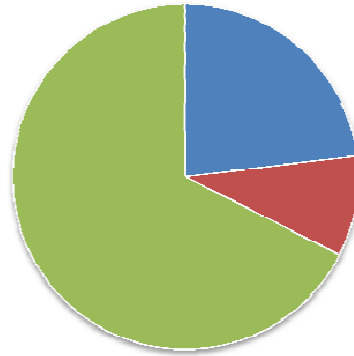


- Never
- Sometimes
- Very Often



e. **Use dishwasher at a different time**

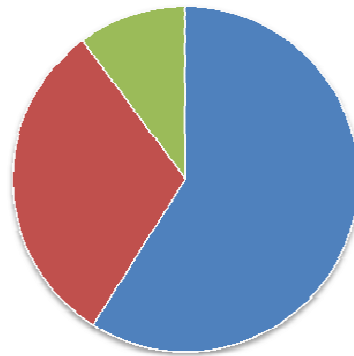
	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
Never	44	23.04%
Sometimes	18	9.42%
Very Often	129	67.54%
	<hr/>	<hr/>
	191	100.00%



■ Never  
■ Sometimes  
■ Very Often

f. **Leave to minimize use**

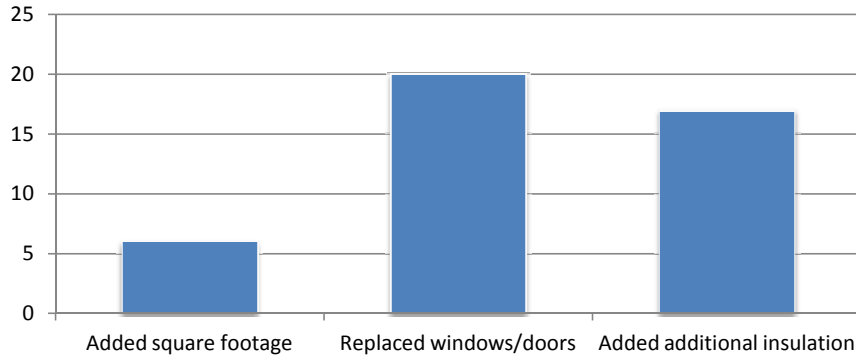
	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
Never	122	58.94%
Sometimes	64	30.92%
Very Often	21	10.14%
	<hr/>	<hr/>
	207	100.00%



■ Never  
■ Sometimes  
■ Very Often

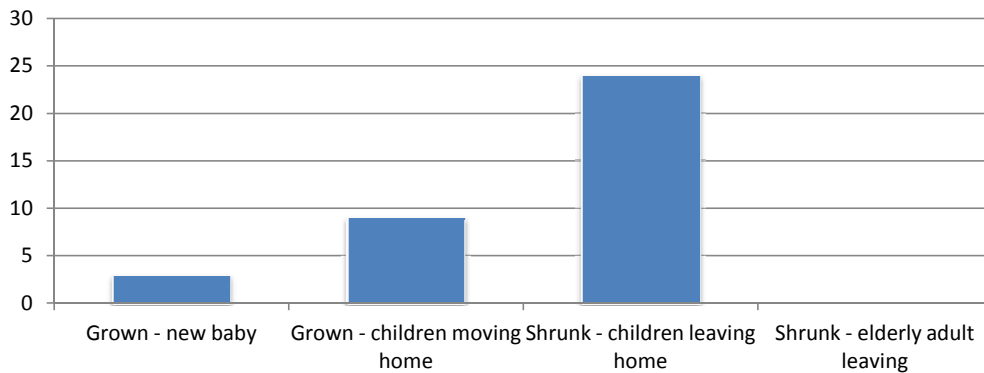
**11. Since June 1 have you made any of the following changes that would impact energy use?  
 CHECK ONE PER OPTION.**

	<u>Yes</u>	<u>No</u>
Added square footage	6	241
Replaced windows/doors	20	226
Added additional insulation	17	226



**12. Has your family size changed since June 1 due to any of the following?  
 CHECK ONE PER OPTION.**

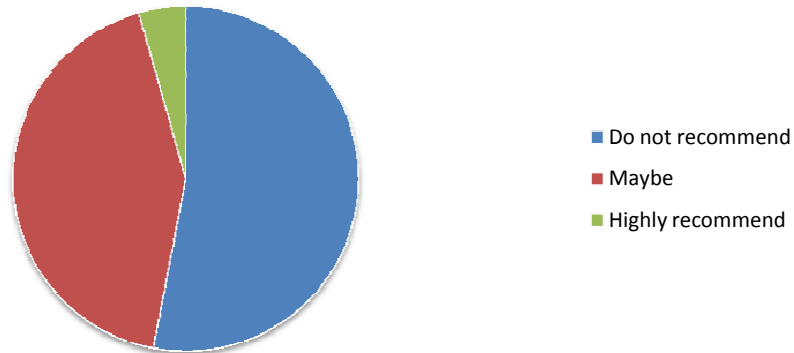
	<u>Yes</u>	<u>No</u>
Grown - new baby	3	238
Grown - children moving home	9	233
Shrunk - children leaving home	24	217
Shrunk - elderly adult leaving	0	241
	<hr/> 36	<hr/> 1



13. Based on your experience in the program, would you recommend any of the following changes? CHECK ONE PER OPTION.

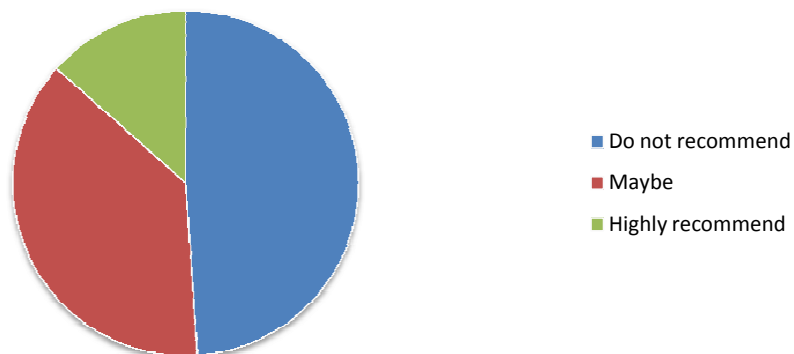
a. **Energy prices during peak events should be higher to discourage energy use**

	<u>Responses</u>	<u>Percentage</u>
Do not recommend	97	53.01%
Maybe	78	42.62%
Highly recommend	8	4.37%
	<hr/> 183	<hr/> 100.00%



b. **Energy prices during peak events should be lower to make events less expensive**

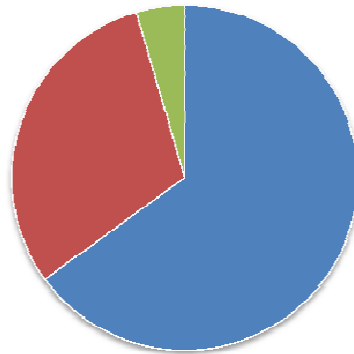
	<u>Responses</u>	<u>Percentage</u>
Do not recommend	91	48.92%
Maybe	70	37.63%
Highly recommend	25	13.44%
	<hr/> 186	<hr/> 100.00%





**c. Notifications should be sent earlier for more advance notice**

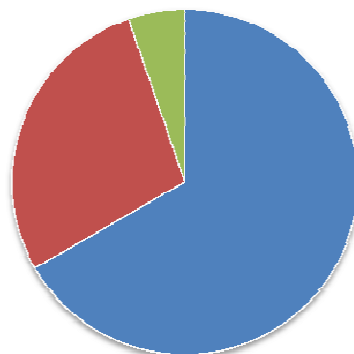
	<u>Responses</u>	<u>Percentage</u>
Do not recommend	115	64.97%
Maybe	54	30.51%
Highly recommend	8	4.52%
	<u>177</u>	<u>100.00%</u>



- Do not recommend
- Maybe
- Highly recommend

**d. Notifications should be sent later to prevent forgetting the event**

	<u>Responses</u>	<u>Percentage</u>
Do not recommend	126	66.67%
Maybe	53	28.04%
Highly recommend	10	5.29%
	<u>189</u>	<u>100.00%</u>

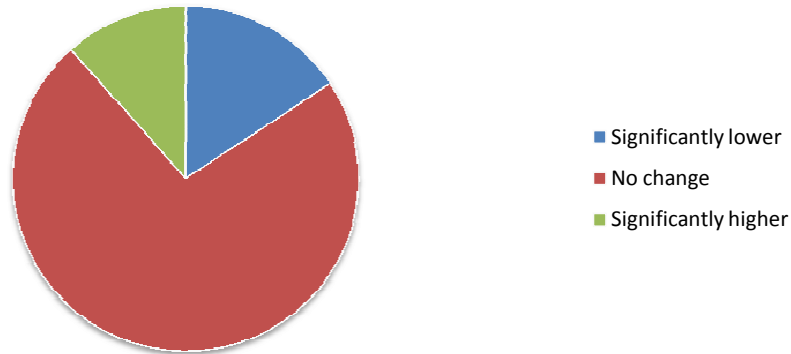


- Do not recommend
- Maybe
- Highly recommend

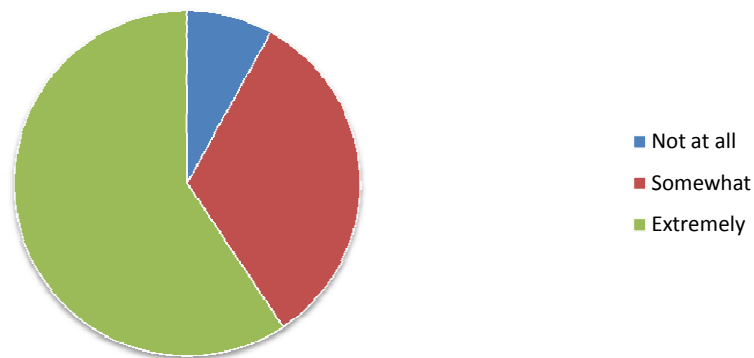


**14. Did this program result in a higher or lower utility bill?**

	<u>Responses</u>	<u>Percentage</u>
Significantly lower	19	15.70%
No change	88	72.73%
Significantly higher	14	11.57%
	<u>121</u>	<u>100.00%</u>


**15. How important were the following factors in your decision to modify behavior?  
CHECK ONE PER OPTION.**
**a. Lower Electric Bill**

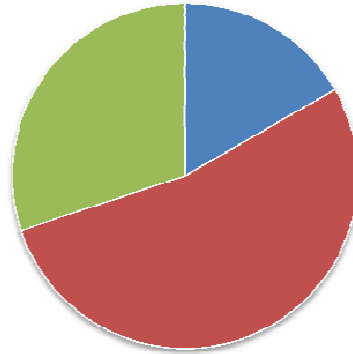
	<u>Responses</u>	<u>Percentage</u>
Not at all	15	8.02%
Somewhat	61	32.62%
Extremely	111	59.36%
	<u>187</u>	<u>100.00%</u>





**b. Environmental impact**

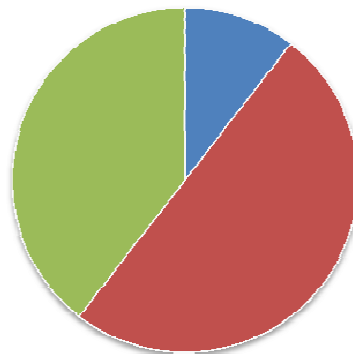
	<u>Responses</u>	<u>Percentage</u>
Not at all	31	16.67%
Somewhat	99	53.23%
Extremely	56	30.11%
	<hr/> 186	<hr/> 100.00%



- Not at all
- Somewhat
- Extremely

**c. Help my coop save money**

	<u>Responses</u>	<u>Percentage</u>
Not at all	18	10.47%
Somewhat	86	50.00%
Extremely	68	39.53%
	<hr/> 172	<hr/> 100.00%

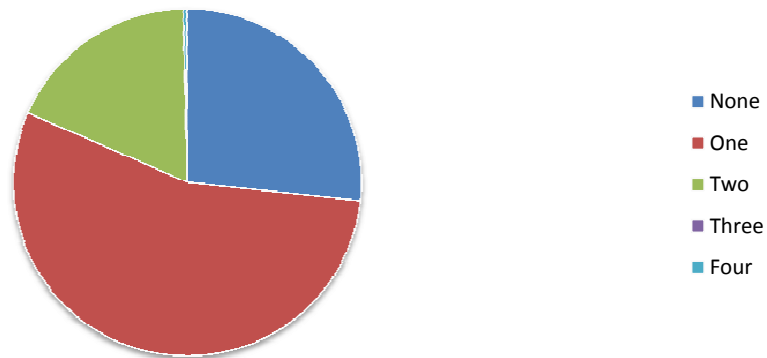


- Not at all
- Somewhat
- Extremely

16. Please indicate how many persons live in this household and if there was any reluctance to participate in this program? **CHECK ONE PER OPTION.**

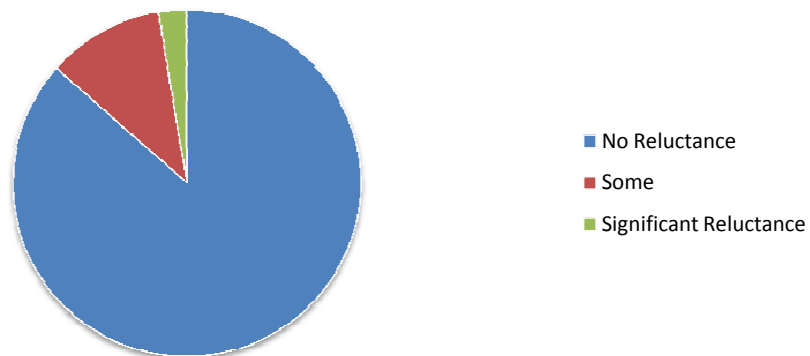
a. **Spouse - # in household**

	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
None	68	26.67%
One	140	54.90%
Two	46	18.04%
Three	0	0.00%
Four	1	0.39%
	<b>255</b>	<b>100.00%</b>



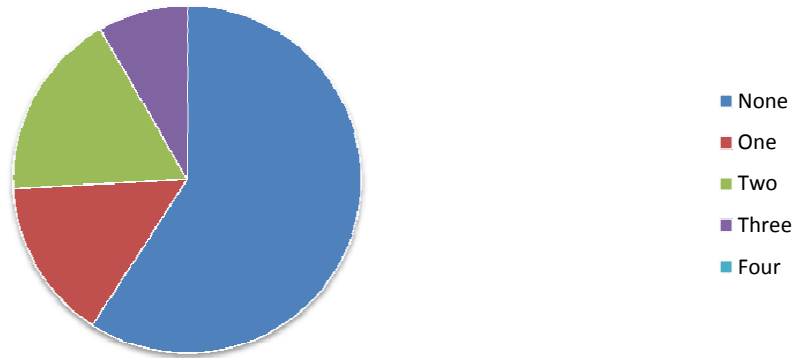
**Spouse - reluctance to participate**

	<b><u>Responses</u></b>	<b><u>Percentage</u></b>
No Reluctance	167	86.53%
Some	21	10.88%
Significant Reluctance	5	2.59%
	<b>193</b>	<b>100.00%</b>

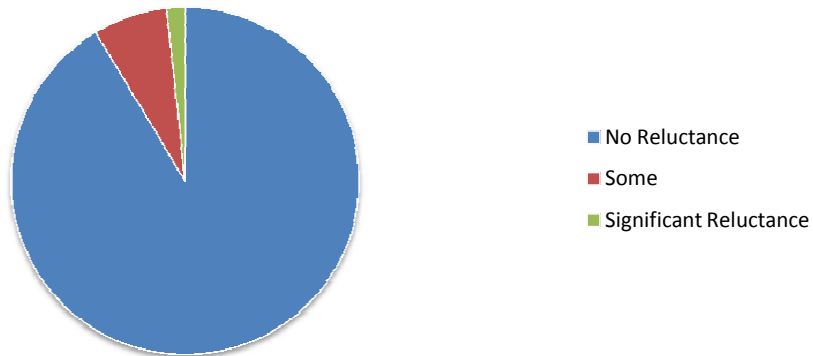


**b. Small child - # in household**

	<u>Responses</u>	<u>Percentage</u>
None	71	59.17%
One	18	15.00%
Two	21	17.50%
Three	10	8.33%
Four	0	0.00%
	<hr/> 120	<hr/> 100.00%


**Small child - reluctance to participate**

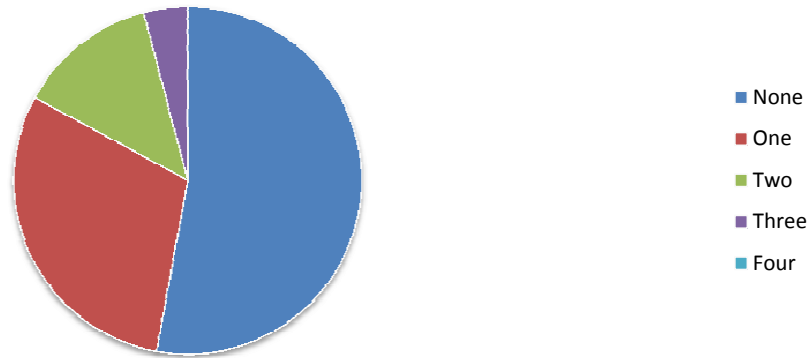
	<u>Responses</u>	<u>Percentage</u>
No Reluctance	53	91.38%
Some	4	6.90%
Significant Reluctance	1	1.72%
	<hr/> 58	<hr/> 100.00%





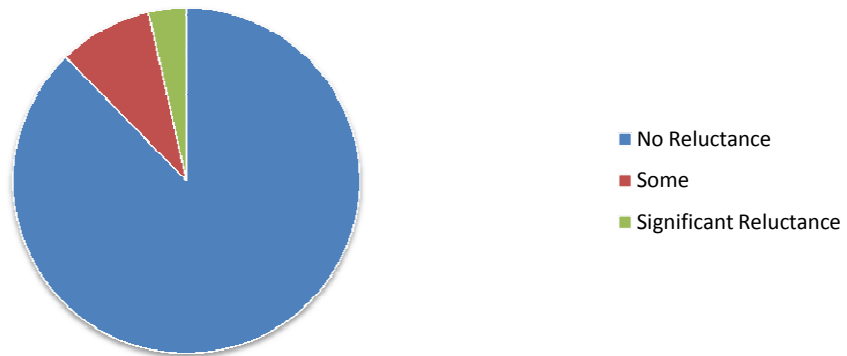
**c. Teenage child - # in household**

	<u>Responses</u>	<u>Percentage</u>
None	65	52.85%
One	37	30.08%
Two	16	13.01%
Three	5	4.07%
Four	0	0.00%
	<hr/> 123	<hr/> 100.00%



**Teenage child - reluctance to participate**

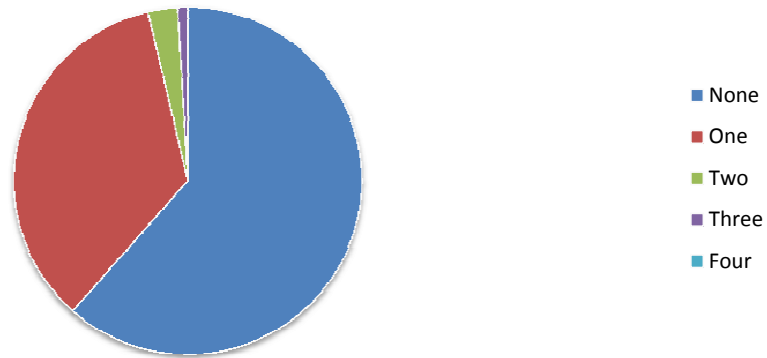
	<u>Responses</u>	<u>Percentage</u>
No Reluctance	50	87.72%
Some	5	8.77%
Significant Reluctance	2	3.51%
	<hr/> 57	<hr/> 100.00%





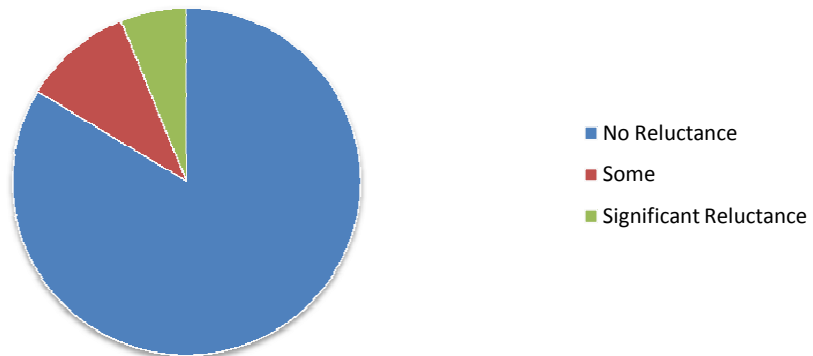
**d. Grown child - # in household**

	<u>Responses</u>	<u>Percentage</u>
None	67	61.47%
One	38	34.86%
Two	3	2.75%
Three	1	0.92%
Four	0	0.00%
	<hr/> 109	<hr/> 100.00%



**Grown child - reluctance to participate**

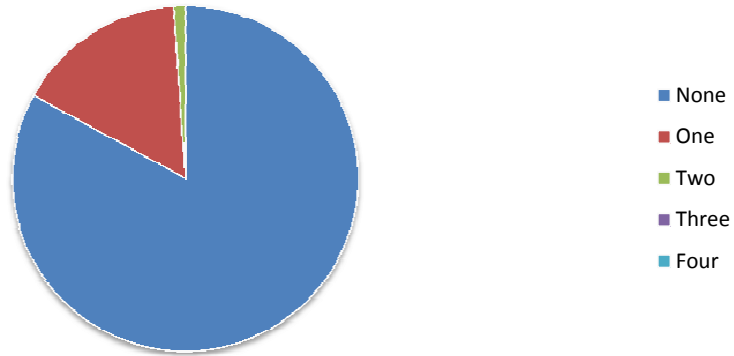
	<u>Responses</u>	<u>Percentage</u>
No Reluctance	41	83.67%
Some	5	10.20%
Significant Reluctance	3	6.12%
	<hr/> 49	<hr/> 100.00%





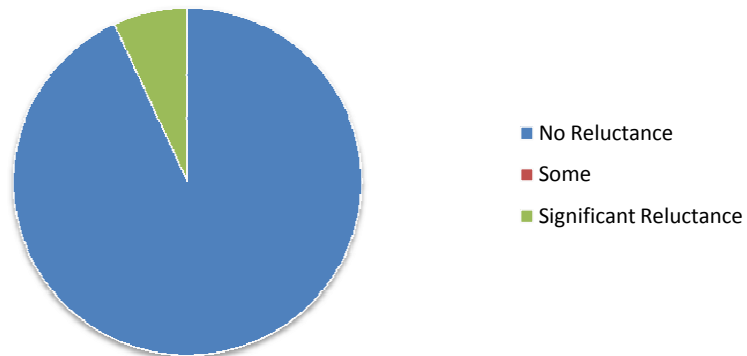
**e. Elderly resident - # in household**

	<u>Responses</u>	<u>Percentage</u>
None	78	82.98%
One	15	15.96%
Two	1	1.06%
Three	0	0.00%
Four	0	0.00%
	<hr/>	
	94	100.00%



**Elderly resident - reluctance to participate**

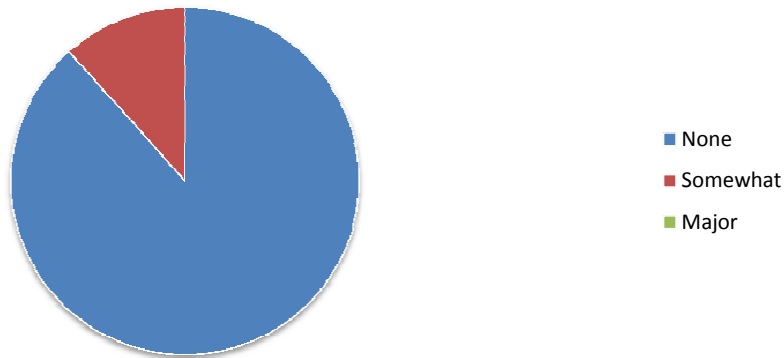
	<u>Responses</u>	<u>Percentage</u>
No Reluctance	27	93.10%
Some	0	0.00%
Significant Reluctance	2	6.90%
	<hr/>	
	29	100.00%



**17. Were you caused any of the following because of program participation?  
 CHECK ONE PER CHOICE.**

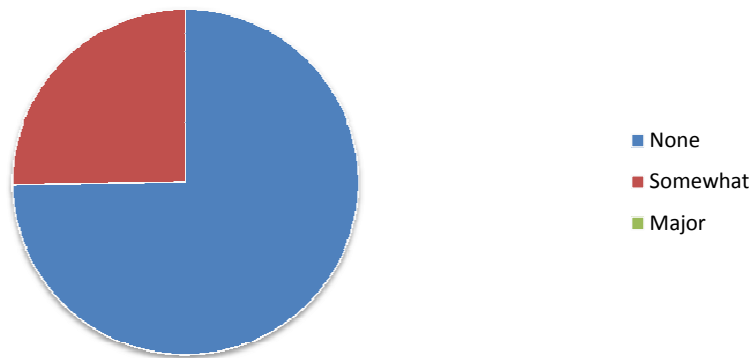
**a. Physical Discomfort**

	<u>Responses</u>	<u>Percentage</u>
None	190	88.37%
Somewhat	25	11.63%
Major	0	0.00%
	<hr/> 215	<hr/> 100.00%



**b. Inconvenience**

	<u>Responses</u>	<u>Percentage</u>
None	136	74.73%
Somewhat	46	25.27%
Major	0	0.00%
	<hr/> 182	<hr/> 100.00%

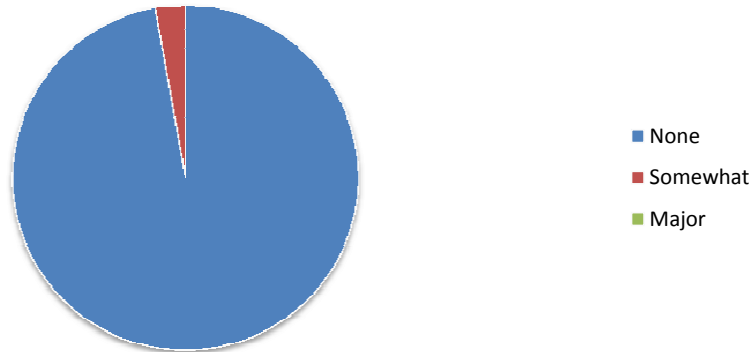






**c. Dissatisfaction with your coop**

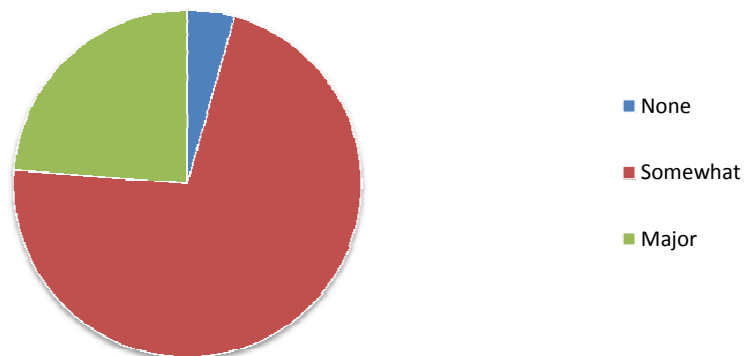
	<u>Responses</u>	<u>Percentage</u>
None	208	97.20%
Somewhat	6	2.80%
Major	0	0.00%
	<hr/> 214	<hr/> 100.00%



**18. How satisfied were you with the results from this program with respect to the following?  
CHECK ONE PER CHOICE.**

**a. Electric bill savings**

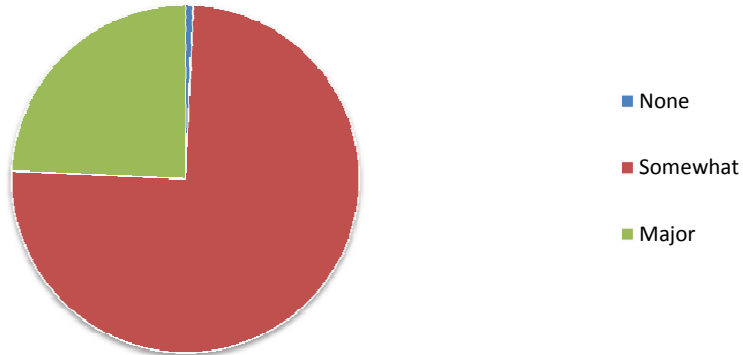
	<u>Responses</u>	<u>Percentage</u>
None	7	4.38%
Somewhat	115	71.88%
Major	38	23.75%
	<hr/> 160	<hr/> 100.00%





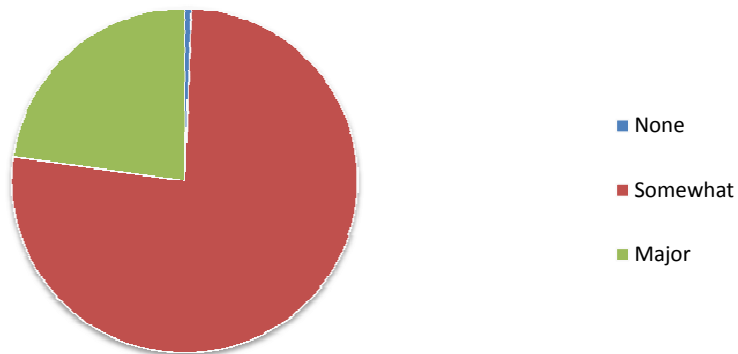
**b. Energy use reduction**

	<u>Responses</u>	<u>Percentage</u>
None	1	0.69%
Somewhat	108	75.00%
Major	35	24.31%
	<hr/>	<hr/>
	144	100.00%



**c. Environmental impact**

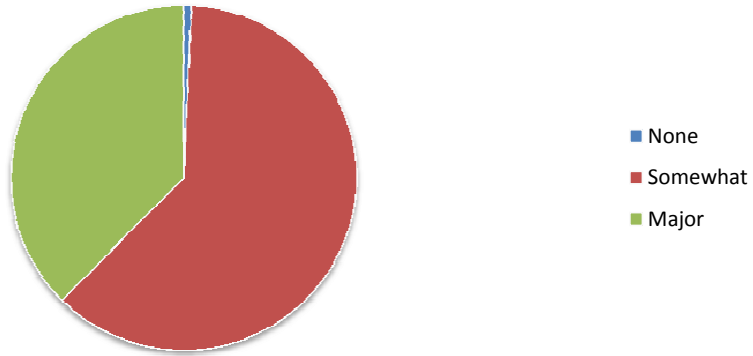
	<u>Responses</u>	<u>Percentage</u>
None	1	0.62%
Somewhat	124	76.54%
Major	37	22.84%
	<hr/>	<hr/>
	162	100.00%





**d. The overall program**

	<u>Responses</u>	<u>Percentage</u>
None	1	0.71%
Somewhat	87	61.70%
Major	53	37.59%
	<hr/>	<hr/>
	141	100.00%





**Comments**

**Question 1. Other**

1. Farm equipment, fans, grain legs
2. dehumidifier
3. Tried not to use, welder etc in the shop, if we could
4. I did not grind feed during peek events
5. dehumidifier
6. not at all items we don't have
7. the ones not market to not apply to us
8. Iron
9. had sump pumps, couldn't change consumption of
10. don't have dishwasher or poop pump
11. fans for livestock!!
12. Switched off refrigerator and hot water heater at fusebox



- 13. dehumidifier vacuum
- 14. used more cordless tools
- 15. running 3 sump pumps continually

**Question 4. Other**

- 16. I was never notified
- 17. Sky-writing? Just kidding. You covered all the bases!
- 18. phone messages didn't come through on answering machine.
- 19. only have phone
- 20. on back of \$20.00 bill
- 21. phone call worked best
- 22. email: jamimix78@aol.com
- 23. with billing
- 24. On the Radio or TV



**Question 11. Other**

25. we are adding more attic insulation this fall
26. added insulating shades to sun room
27. lot of basement water (repair that) so we don't need the pumps
28. would like assistance on (replacing windows/doors & additional insulation)
29. we have a new home
30. re-roofed our home
31. Added Weather-Stripping
32. Allready did these + have compact CFL's
33. Our home & appliances are only 10 yrs. old
34. Resided our home from vinyl to cement board
35. caulk & seal cracks



36. we will be replacing a leaky window soon.

37. Did all the above in previous 5 years

**Question 12. Other**

38. widower

39. usually always someone at residence

40. lost a pet

41. family members moved in

**Question 19. Other**

42. She has been in the rest home since January 2011

43. Have not got a report on how it affected my billing!

44. I'm not sure of the saving from participation in this program Didn't see results from program.

45. \$50 svgs hardly seems worth all the fuss. Next to no svgs during highest pk event no svgs best I can determine



46. My bill was approximately the same, but your note on the bill said there was a significant savings. We have no way of knowing if we don't understand what comparison you are using.
47. The only change in our bill was die to being aware of times when CPP was and not using appliances then.
48. if needed - it should work
49. This is a hog confinement building - many questions do not apply
50. We only saved \$40.00 NO MUCH
51. I realize energy prices continue to soar & Incomes do not. If CPP is Implemented we would change our lifestyle some to cut down during peak events. At this point we did nothing different. If it were long term - yes then we would implement some changes - Definitely not against custting cost - yours & ours!
52. This sight is just hog units
53. This program would work well for houses only. Should be modified for farm use. We were fine with turning appliances off in the house. Howevedr, our 4H livestock could not be w/o fans. It was just too hot this summer. We could have saved more, but with animals in the barn we never did shut off big barn fans, and we ran about 4 in various sizes.





54. We knew on hot humid days it was a peak period. We did other energy saving things not listed (ie closed shades)
55. Would like to see an additional reminder 1 hour before event. We liked 24 hours so we could have time to plan for the next day/event but a reminder an hour before would be nice so we don't forget.
56. if it helps: continue. makes us aware.
57. Since we live on a farm, program may not reflect true picture because only inside of home is reflected -- thanks!
58. Sorry Don't know how much I saved
59. I have geotherm for my heat and air cond. and my bill don't seem that much higher than any other summer month
60. If it will help save our coop money we're all for it. A little preplanning is all that is needed to comply with the peak load period.
61. If it saves as \$ and saves overall energy - Let's Keep doing this! Day before is great!



62. I use far more elec. for the Farm than the Home. so changing when I grind feed, ran fans, power wash, would have a greater impact on elec. usage. allso I did not know at my BW elec. bill would be split, this I Did not like.
63. no
64. We did not appreciate the extra internet charge and the basic service chg associated with the billing charge. Each time you change billing cycle you can charge the billing date + send a second bill with those charges. We do not appreciate that.
65. Nothing was modified because of the program but I feel that it really didn't matter either way. As far as difference in bills. Hotter summer than previous years so AC used more so bills more!!
66. The demand controllers that BHP+L use help the home owner by doing the controlling. If the owner request a controller then the "work" to change their lifestyle is provided by the controller.
67. Broaden the program would anticipate a longer time framed program next year
68. It is difficult to assess any cost of energy saving espc. with the variable rates. Overall, our energy bills were significantly higher this year over past years. We have been unable to access "empower" program online - there seems to be a technical glitch. It would be nice to see visually when + how much electricity we are using then we can modify our usage.



69. It was hard to be hot on those hot/sticky days when we turned our thermostat up. I understand the need for energy savings.
70. An Average Yearly Billing divide by 12 months would be easier to budget.
71. I believe my participation in another program which shuts off my access during peak useage made this program seem useless. My energy is being controlled so my options to control it myself are not available. These two programs seem to be in conflict with each other.
72. because we are on budget billing it would be difficult to determine savings.
73. We really didn't change things much.
74. REA is very important; we live in the country, but ectric energy is still very high in dollar amounts. We understand that everything is becoming mor expensive so we just must save as we can. Thank you.
75. I feel I'm quite conservative by I paid attention to peek times and used less - I didn't seem to save \$\$ - So I'm rather undecided if important. Thanks for making me more aware of peak times - it became a "good habit" to carry on.



76. Broaden the program - give more people a way to make a difference. Thanks for including us.
77. I would like to know how my bill compares to last year same time
78. I normally try to minimize usage during peak hours, so I merely continued normal. In April replaced AC with more energy-efficient unit. Am replacing light bulbs & appliances with more efficient units as need/wearing out demands. Have been an "aware user".
79. 1. I feel it is very important for SVE-to let customers know when CPP-are! 2. And-Encourage Customers to Not use (use Less) Energy-During CPP!
80. If we hadn't had the display we wouldn't have known when the alert was. The message left on the answering machine started too soon, so we never heard anything except maybe "thank you". We didn't notice a huge savings, but it was easy to adjust to, especially with no weekends involved.
81. It would be nice to include my bill amounts from last summer, so I could compare to this summer. And the survey is really long!
82. The monitoring needs to be easier to use so it is easier to understand consumption both on + off peak.



83. We all work we only have four hours a day to get our things done and can't avoid energy use during peak times
84. We appreciate participating in this program. Anything to help cut cust is important to us.
85. I was very satisfied with the program. For us as family everything with the program worked well.
86. I do not kow if we used less energy + a lower bill
87. The program only works for people with a flexable schedule. 8-5 jobs and school age children the program would be very inconvenient
88. \*I could never get my empower app to load on computer. Tried numerous times.  
\*When consecutive days on peak days - it was hard to figure out on device - it should give read out of times + day, not just the red dot indicator, because it just stayed lit for days. Confusing
89. It taught us to be more conscious of our energy use. Good Program!
90. I try to save all the time anyway-



91. We participated in the program really without what it was going to accomplish. Hardly fair to for we are a retired couple and had no problem with the peak times for a family working class seems to us it couldn't + wouldn't work - we just work around the peak time to save energy thanks
92. When the AC was off to long the house was miserable unitl midnight when it caught up (that sucked)
93. My wife and I are 87 yr old so maybe someone else would have been better
94. Interested in hearing the results of the program for the future
95. send a followup text the morning of the event.
96. It would be nice to get an actual comparison of our bill + usage this year compared to 2010 so we could see how the program affected us.
97. Question 17-even though it seemed inconvenient and there was physical discomfort it was far more pleaseing to get a lower electric bill.
98. We have a home that is cooled with window AC units and if really made the peak events pretty miserable. If the program was offered again I would probably not elect to do it. The savings were not enough to offset the discomfort. With three small children in the house I would prefer to be able to run the AC if the temp gets dangerously high. Other than that it was not a problem to deal with.



99. Keep tell us how to reduce energy use.

100. In my cmparison and typical use of the utility, I found little difference between 2010 and 2011. However, outdoor temp and a low member household may have had something to do with little change in cost.

101. The first 3 times the home display didn't go off so had calls also the message was over before answering mashine picked up message. when I called the home display worked when she set it off.

102. OK.

103. None, really. Just I wonder how accurate this will be given how odd the weather seemed! The temps were off the charts sometimes, which does not seem normal.

104. 9/20/2011

105. Lower "non-peak" rate more.

106. The last hour of the four hr period our house heated up the most. Maybe try a three hour period. Thanks.



107. You didn't send a postage paid envelope to send this back in!

108. I think it did save me some money

109. Our 3 months overall savings over 2010's summer bills was \$11.51. We used 108 less KWH's in 2011 then we did in 2010. (3 summer months)

110. Provide us with info as to your success or not of the program.

111. We are gone all day most days so did not change habits at house - only chage is grown child moved out in middle summer.

112. I would be very interested in having you install a load-control device on our geo-thermal heat pump so that the coop could take it off line during peaks. We found that 4 hrs without air conditioning (during peaks) barely caused our home air temp to rise. The problem is we are not always available to turn down thermostat. PS I didn't receive a stamped envelope.

113. CONTINUE THE PROGRAM BY ALL MEANS!

114. no loarger print on survey





115. went into the program hoping to save money our bills are usually \$100.00 or less, one bill was 166.00 on this program. we are usually pretty good at keeping our usage low. but during 90 degree weather its tough to stay comfortable + save energy.
116. I would like to see a side-by-side report that compares the energy + cost savings against what we would have used if not on the program this summer.
117. It's nice to have a program like this to help control costs; however only 1 notification is necessary for us
118. We did not have any savings on our electric bill, but feel part of that was due to it being an extremely hot summer. We did turn up our air conditioner several degrees higher throughout the summer than what we previously set it at past summers. I think it's a good idea to cont. this program to notify customers when high peak times are.
119. We were unable to shut off dehumidifiers (2) sumpump fans - due to water in basement for 5 months wife has asthma and requires air filters and air conditioning had to cool livestock on extremely hot days in afternoons + peak times



120. For me pick events of electric usage happen at the time when I needed electricity the most, so would take major life sytle changes to take full advantage of the program. Can save some electricity but not a large amount.
121. Please continue with the program. Helpful for us to know the high peak time.
122. get Grants for more windpower Projects, make arabs pay! for 9-11
123. I really appreciate the idea of this program, but I'm not sure of the impact on my bill or usage (Q14 + Q18). I didn't know where to easily find this data for comparison, so I wasn't as engaged in the program as I could have been.
124. Since this is a lake cabin there are fairly few times it was occupied during peak hours.
125. Our electric load is at a cabin on Lake Campbel + we did not receive notices there.



126. I'm not sure what impact it had for us to cut back on our power usage during critical peak times. We did our best to use very little power during critical peak times, but are unaware of the results. How could we find out this information?
127. Business, which can't be shut down for 1/2 - 1 day for peak hour, is the greater share of elec. use.
128. I did not change the temperature of our home - but don't think we ever over use the air conditioning Did always not use the stove - washer or dryer during peak times feel if we all could even do that much it would really help - did not notice any reduction in bills
129. Unable to answer #18 because we cannot acces our Empower information on the website. There appears to be an error on the page.
130. I forgot about the program. Don't recall getting any notices of events.
131. Unclear about energy savings + should we leave AC running all day or turn it off and then it will need to catch up for night so we can sleep
132. maybe more explaining and more often in our magazines - might be a thought



133. We didn't get the notifications of the peak events-

134. happy with the program. helped save money. Thanks!

135. Pray for 72 to 75 degree Weather on hot days. I guess we can't do the weather.

136. What is the Cost of a wind tower for my Acreage

137. I did not realize we were even having the event go on

138. everyone should have a load meter device on their water heater like we do and also in future on washing machine and dryer

139. NA

140. We thought being involved in this energy program our electric bill would be significantly lower. not the case.

141. It is difficult to know if there was any savings as the rates have increased making the bills higher (#14 & #18)

142. I wasn't on this program. I must of been mailed this by mistake.



143. We were not affected significantly. were able to "live with" the peak event. We did not use the home display plug-in unit - didn't need more technology!
144. Most of our electric use is for Ag. business and can not be changed much to use less electricity. Hard to turn off ventilation when it is hot or stop feeding for a day.

**Appendix E**  
**Bill Impact Assessment -**  
**Combined Consumers**

**Sioux Valley Energy**  
**2011 EmPOWER CPP Evaluation**  
**Bill Impact Assessment -- Combined Consumers**

Total Group	Summary Statistics <sup>1</sup>			
	Standard	CPP	Incr./(Decr.)	Percent
Total	\$ 208,040	\$ 194,244	\$ (13,796)	-6.6%
Annual Average	\$ 391	\$ 365	\$ (26)	-6.6%
Monthly Average	\$ 130	\$ 122	\$ (9)	-6.6%
Median				-5.8%
Max Percent				8.2%
Min Percent				-20.3%
Bill Increase Frequency				38
Bill Decrease Frequency				494
Sum of Increases	\$ 7,625	\$ 7,792	\$ 168	2.2%
Sum of Decreases	\$ 200,415	\$ 186,451	\$ (13,964)	-7.0%
Ave Annual Increase	\$ 201	\$ 205	\$ 4	2.2%
Ave Annual Decrease	\$ 406	\$ 377	\$ (28)	-7.0%

<sup>1</sup> Based on data for June 2011 to August 2011.

June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./(Decr.)	Change	
50197	FRR	\$ 254	\$ 233	\$ (21)	-8%	
50225	FRR	\$ 718	\$ 702	\$ (16)	-2%	
50234	FRR	\$ 496	\$ 457	\$ (39)	-8%	
50301	FRR	\$ 660	\$ 568	\$ (93)	-14%	
50414	FRR	\$ 840	\$ 720	\$ (121)	-14%	
50425	FRR	\$ 287	\$ 266	\$ (21)	-7%	
50437	FRR	\$ 269	\$ 256	\$ (13)	-5%	
50444	FRR	\$ 330	\$ 298	\$ (31)	-9%	
50475	FRR	\$ 399	\$ 368	\$ (31)	-8%	
50488	FRR	\$ 309	\$ 296	\$ (13)	-4%	
50502	FRR	\$ 351	\$ 330	\$ (21)	-6%	
50515	FRR	\$ 346	\$ 314	\$ (32)	-9%	
50521	FRR	\$ 1,320	\$ 1,195	\$ (125)	-9%	
50543	FRR	\$ 286	\$ 262	\$ (24)	-9%	
50554	FRR	\$ 262	\$ 260	\$ (2)	-1%	
50572	FRR	\$ 276	\$ 252	\$ (24)	-9%	
50579	FRR	\$ 500	\$ 469	\$ (31)	-6%	
50585	FRR	\$ 589	\$ 503	\$ (86)	-15%	
50590	FRR	\$ 842	\$ 799	\$ (43)	-5%	
50596	Res	\$ 371	\$ 359	\$ (12)	-3%	
50603	FRR	\$ 357	\$ 356	\$ (1)	0%	
50604	FRR	\$ 258	\$ 245	\$ (13)	-5%	
50608	Res	\$ 199	\$ 193	\$ (6)	-3%	

June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./.(Decr.)	Change	
50615	FRR	\$ 238	\$ 222	\$ (16)	-7%	
50616	FRR	\$ 468	\$ 435	\$ (33)	-7%	
50621	FRR	\$ 205	\$ 193	\$ (12)	-6%	
50660	Res	\$ 233	\$ 217	\$ (15)	-7%	
50662	Res	\$ 234	\$ 243	\$ 9	4%	
50689	FRR	\$ 218	\$ 208	\$ (11)	-5%	
50707	FRR	\$ 299	\$ 276	\$ (23)	-8%	
50718	FRR	\$ 166	\$ 163	\$ (3)	-2%	
50729	FRR	\$ 555	\$ 517	\$ (38)	-7%	
50733	FRR	\$ 845	\$ 776	\$ (70)	-8%	
50785	FRR	\$ 270	\$ 242	\$ (28)	-10%	
50964	FRR	\$ 395	\$ 362	\$ (33)	-8%	
50967	FRR	\$ 319	\$ 292	\$ (27)	-9%	
50984	FRR	\$ 443	\$ 414	\$ (28)	-6%	
51010	FRR	\$ 326	\$ 307	\$ (18)	-6%	
51035	FRR	\$ 908	\$ 830	\$ (78)	-9%	
51040	FRR	\$ 489	\$ 459	\$ (29)	-6%	
51067	FRR	\$ 263	\$ 257	\$ (6)	-2%	
51068	FRR	\$ 341	\$ 327	\$ (13)	-4%	
51083	FRR	\$ 270	\$ 264	\$ (6)	-2%	
51084	FRR	\$ 341	\$ 322	\$ (20)	-6%	
51100	FRR	\$ 243	\$ 236	\$ (8)	-3%	
51104	FRR	\$ 545	\$ 512	\$ (33)	-6%	
51106	FRR	\$ 1,491	\$ 1,329	\$ (162)	-11%	
51142	FRR	\$ 532	\$ 506	\$ (26)	-5%	
51171	FRR	\$ 213	\$ 193	\$ (21)	-10%	
51173	FRR	\$ 976	\$ 895	\$ (81)	-8%	
51178	FRR	\$ 106	\$ 103	\$ (3)	-3%	
51192	FRR	\$ 378	\$ 359	\$ (19)	-5%	
51196	FRR	\$ 568	\$ 522	\$ (45)	-8%	
51229	FRR	\$ 390	\$ 359	\$ (31)	-8%	
51237	FRR	\$ 342	\$ 326	\$ (16)	-5%	
51247	FRR	\$ 345	\$ 321	\$ (24)	-7%	
51255	FRR	\$ 270	\$ 260	\$ (10)	-4%	
51274	FRR	\$ 377	\$ 350	\$ (27)	-7%	
51278	FRR	\$ 382	\$ 363	\$ (19)	-5%	
51289	FRR	\$ 306	\$ 279	\$ (27)	-9%	
51299	FRR	\$ 233	\$ 217	\$ (17)	-7%	
51314	FRR	\$ 438	\$ 395	\$ (43)	-10%	
51327	FRR	\$ 555	\$ 514	\$ (41)	-7%	
51331	FRR	\$ 162	\$ 151	\$ (11)	-7%	
51338	FRR	\$ 506	\$ 466	\$ (40)	-8%	
51343	FRR	\$ 752	\$ 687	\$ (65)	-9%	
51366	Res	\$ 108	\$ 106	\$ (2)	-2%	
51369	Res	\$ 214	\$ 201	\$ (13)	-6%	



June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./(Decr.)	Change	
51375	FRR	\$ 304	\$ 291	\$ (13)	-4%	
51388	Res	\$ 208	\$ 197	\$ (11)	-5%	
51399	Res	\$ 72	\$ 71	\$ (1)	-1%	
51416	Res	\$ 132	\$ 128	\$ (5)	-4%	
51422	Res	\$ 97	\$ 94	\$ (3)	-3%	
51427	FRR	\$ 356	\$ 325	\$ (31)	-9%	
51434	Res	\$ 205	\$ 203	\$ (2)	-1%	
51436	Res	\$ 105	\$ 103	\$ (1)	-1%	
51441	Res	\$ 121	\$ 122	\$ 1	1%	
51442	Res	\$ 316	\$ 297	\$ (19)	-6%	
51462	Res	\$ 145	\$ 132	\$ (13)	-9%	
51476	FRR	\$ 418	\$ 382	\$ (35)	-8%	
51481	FRR	\$ 277	\$ 264	\$ (13)	-5%	
51485	FRR	\$ 354	\$ 341	\$ (13)	-4%	
51493	FRR	\$ 477	\$ 444	\$ (33)	-7%	
51494	FRR	\$ 202	\$ 202	\$ (0)	0%	
51525	FRR	\$ 379	\$ 345	\$ (34)	-9%	
51527	Res	\$ 225	\$ 210	\$ (15)	-6%	
51538	Res	\$ 276	\$ 283	\$ 7	3%	
51541	Res	\$ 94	\$ 88	\$ (6)	-6%	
51555	FRR	\$ 344	\$ 321	\$ (23)	-7%	
51578	FRR	\$ 1,041	\$ 920	\$ (121)	-12%	
51586	FRR	\$ 392	\$ 363	\$ (29)	-7%	
51599	FRR	\$ 352	\$ 340	\$ (12)	-4%	
51612	FRR	\$ 267	\$ 243	\$ (24)	-9%	
51614	FRR	\$ 248	\$ 229	\$ (19)	-7%	
51625	FRR	\$ 245	\$ 232	\$ (13)	-5%	
51681	FRR	\$ 860	\$ 814	\$ (46)	-5%	
51712	FRR	\$ 287	\$ 270	\$ (17)	-6%	
51720	FRR	\$ 282	\$ 263	\$ (18)	-7%	
51729	FRR	\$ 279	\$ 284	\$ 6	2%	
51764	FRR	\$ 388	\$ 357	\$ (31)	-8%	
51807	FRR	\$ 297	\$ 267	\$ (30)	-10%	
51811	Res	\$ 284	\$ 273	\$ (11)	-4%	
51834	FRR	\$ 443	\$ 409	\$ (34)	-8%	
51838	Res	\$ 228	\$ 223	\$ (6)	-2%	
51839	Res	\$ 205	\$ 198	\$ (7)	-4%	
51841	FRR	\$ 241	\$ 220	\$ (21)	-9%	
51901	FRR	\$ 499	\$ 466	\$ (33)	-7%	
51903	FRR	\$ 221	\$ 206	\$ (15)	-7%	
51911	FRR	\$ 370	\$ 345	\$ (25)	-7%	
51923	FRR	\$ 484	\$ 447	\$ (38)	-8%	
51934	Res	\$ 199	\$ 193	\$ (5)	-3%	
51957	Res	\$ 237	\$ 224	\$ (13)	-5%	
51959	FRR	\$ 500	\$ 462	\$ (37)	-7%	

June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./.(Decr.)	Change	
51962	Res	\$ 132	\$ 120	\$ (12)	-9%	
51971	Res	\$ 260	\$ 251	\$ (9)	-3%	
51975	FRR	\$ 232	\$ 219	\$ (13)	-6%	
51986	FRR	\$ 487	\$ 442	\$ (44)	-9%	
51993	Res	\$ 168	\$ 153	\$ (15)	-9%	
51999	FRR	\$ 238	\$ 221	\$ (17)	-7%	
52001	Res	\$ 156	\$ 159	\$ 3	2%	
52002	Res	\$ 203	\$ 196	\$ (7)	-3%	
52006	Res	\$ 74	\$ 71	\$ (3)	-4%	
52013	Res	\$ 105	\$ 97	\$ (8)	-8%	
52016	Res	\$ 153	\$ 142	\$ (11)	-7%	
52017	Res	\$ 160	\$ 158	\$ (2)	-1%	
52042	Res	\$ 88	\$ 81	\$ (7)	-8%	
52045	Res	\$ 446	\$ 416	\$ (30)	-7%	
52047	Res	\$ 149	\$ 136	\$ (13)	-9%	
52079	Res	\$ 418	\$ 398	\$ (20)	-5%	
52080	Res	\$ 302	\$ 284	\$ (18)	-6%	
52090	FRR	\$ 236	\$ 223	\$ (13)	-5%	
52103	FRR	\$ 812	\$ 763	\$ (49)	-6%	
52106	FRR	\$ 91	\$ 91	\$ 0	1%	
52109	FRR	\$ 314	\$ 300	\$ (14)	-4%	
52124	FRR	\$ 272	\$ 261	\$ (11)	-4%	
52126	Res	\$ 257	\$ 244	\$ (12)	-5%	
52129	Res	\$ 384	\$ 372	\$ (12)	-3%	
52172	FRR	\$ 179	\$ 168	\$ (11)	-6%	
52183	FRR	\$ 1,126	\$ 897	\$ (228)	-20%	
52185	FRR	\$ 224	\$ 202	\$ (21)	-10%	
52190	FRR	\$ 565	\$ 532	\$ (33)	-6%	
52198	FRR	\$ 248	\$ 237	\$ (11)	-4%	
52202	FRR	\$ 413	\$ 384	\$ (29)	-7%	
52210	FRR	\$ 125	\$ 121	\$ (3)	-3%	
52224	FRR	\$ 119	\$ 114	\$ (4)	-4%	
52246	FRR	\$ 273	\$ 264	\$ (8)	-3%	
52250	FRR	\$ 250	\$ 236	\$ (15)	-6%	
52261	FRR	\$ 488	\$ 452	\$ (37)	-7%	
52265	FRR	\$ 442	\$ 393	\$ (49)	-11%	
52268	FRR	\$ 412	\$ 379	\$ (33)	-8%	
52277	FRR	\$ 215	\$ 202	\$ (13)	-6%	
52289	FRR	\$ 279	\$ 258	\$ (21)	-7%	
52335	Res	\$ 325	\$ 300	\$ (26)	-8%	
52336	Res	\$ 279	\$ 272	\$ (7)	-2%	
52346	FRR	\$ 304	\$ 291	\$ (13)	-4%	
52351	FRR	\$ 127	\$ 123	\$ (4)	-3%	
52357	FRR	\$ 745	\$ 713	\$ (33)	-4%	
52363	FRR	\$ 429	\$ 397	\$ (32)	-8%	

June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./.(Decr.)	Change	
52368	Res	\$ 607	\$ 562	\$ (45)	-7%	
52386	FRR	\$ 366	\$ 336	\$ (30)	-8%	
52405	FRR	\$ 521	\$ 485	\$ (36)	-7%	
52410	Res	\$ 204	\$ 208	\$ 4	2%	
52416	Res	\$ 94	\$ 87	\$ (6)	-6%	
52417	Res	\$ 181	\$ 173	\$ (8)	-4%	
52431	FRR	\$ 475	\$ 450	\$ (25)	-5%	
52432	FRR	\$ 231	\$ 219	\$ (13)	-5%	
52436	FRR	\$ 192	\$ 181	\$ (11)	-6%	
52440	FRR	\$ 1,005	\$ 921	\$ (84)	-8%	
52445	FRR	\$ 393	\$ 364	\$ (29)	-7%	
52494	FRR	\$ 637	\$ 610	\$ (27)	-4%	
52505	FRR	\$ 638	\$ 598	\$ (40)	-6%	
52510	FRR	\$ 303	\$ 308	\$ 5	2%	
52529	FRR	\$ 419	\$ 375	\$ (44)	-10%	
52534	Res	\$ 153	\$ 141	\$ (12)	-8%	
52538	Res	\$ 214	\$ 213	\$ (1)	0%	
52542	Res	\$ 319	\$ 301	\$ (17)	-5%	
52543	Res	\$ 264	\$ 254	\$ (10)	-4%	
52648	FRR	\$ 352	\$ 326	\$ (26)	-8%	
52659	FRR	\$ 408	\$ 376	\$ (32)	-8%	
52699	FRR	\$ 362	\$ 336	\$ (26)	-7%	
52720	FRR	\$ 250	\$ 243	\$ (7)	-3%	
53127	Res	\$ 223	\$ 217	\$ (6)	-3%	
53132	FRR	\$ 382	\$ 368	\$ (14)	-4%	
53162	Res	\$ 172	\$ 173	\$ 2	1%	
53165	Res	\$ 325	\$ 313	\$ (12)	-4%	
53170	Res	\$ 226	\$ 203	\$ (23)	-10%	
53172	Res	\$ 151	\$ 136	\$ (15)	-10%	
53175	Res	\$ 196	\$ 194	\$ (3)	-1%	
53190	Res	\$ 142	\$ 134	\$ (8)	-6%	
53191	Res	\$ 293	\$ 279	\$ (14)	-5%	
53212	Res	\$ 79	\$ 73	\$ (7)	-8%	
53219	Res	\$ 289	\$ 277	\$ (11)	-4%	
53220	Res	\$ 247	\$ 233	\$ (14)	-6%	
53416	FRR	\$ 168	\$ 165	\$ (3)	-2%	
53424	Res	\$ 140	\$ 140	\$ (0)	0%	
53433	FRR	\$ 110	\$ 106	\$ (4)	-4%	
53436	Res	\$ 325	\$ 326	\$ 1	0%	
53437	Res	\$ 160	\$ 151	\$ (8)	-5%	
53438	Res	\$ 130	\$ 126	\$ (4)	-3%	
53439	Res	\$ 205	\$ 213	\$ 8	4%	
53442	Res	\$ 137	\$ 136	\$ (1)	-1%	
53444	Res	\$ 231	\$ 223	\$ (7)	-3%	
53450	Res	\$ 293	\$ 275	\$ (18)	-6%	

June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./.(Decr.)	Change	
53451	Res	\$ 192	\$ 202	\$ 10	5%	
53463	FRR	\$ 440	\$ 404	\$ (36)	-8%	
53470	Res	\$ 272	\$ 257	\$ (15)	-6%	
53471	Res	\$ 194	\$ 175	\$ (19)	-10%	
53472	Res	\$ 208	\$ 216	\$ 8	4%	
53473	Res	\$ 452	\$ 431	\$ (20)	-4%	
53476	Res	\$ 182	\$ 196	\$ 15	8%	
53492	Res	\$ 91	\$ 85	\$ (6)	-6%	
53609	FRR	\$ 277	\$ 270	\$ (7)	-3%	
53612	FRR	\$ 258	\$ 238	\$ (19)	-7%	
53635	Res	\$ 277	\$ 261	\$ (16)	-6%	
53638	Res	\$ 231	\$ 237	\$ 6	3%	
53640	Res	\$ 180	\$ 167	\$ (12)	-7%	
54333	FRR	\$ 456	\$ 414	\$ (42)	-9%	
54351	FRR	\$ 125	\$ 119	\$ (6)	-5%	
54362	FRR	\$ 187	\$ 183	\$ (5)	-3%	
54366	FRR	\$ 179	\$ 167	\$ (12)	-7%	
54388	Res	\$ 231	\$ 232	\$ 0	0%	
54389	FRR	\$ 184	\$ 174	\$ (10)	-5%	
54408	FRR	\$ 425	\$ 397	\$ (28)	-6%	
54417	FRR	\$ 227	\$ 217	\$ (10)	-5%	
54418	Res	\$ 235	\$ 226	\$ (9)	-4%	
54419	FRR	\$ 220	\$ 213	\$ (7)	-3%	
54424	Res	\$ 366	\$ 346	\$ (20)	-5%	
54425	Res	\$ 243	\$ 239	\$ (4)	-2%	
54426	FRR	\$ 147	\$ 139	\$ (8)	-6%	
54427	Res	\$ 156	\$ 143	\$ (14)	-9%	
54428	FRR	\$ 196	\$ 187	\$ (8)	-4%	
54449	FRR	\$ 421	\$ 394	\$ (28)	-7%	
54526	FRR	\$ 413	\$ 402	\$ (11)	-3%	
54532	Res	\$ 244	\$ 238	\$ (6)	-3%	
54533	Res	\$ 281	\$ 252	\$ (29)	-10%	
54534	Res	\$ 180	\$ 176	\$ (5)	-3%	
54535	Res	\$ 263	\$ 266	\$ 2	1%	
54538	FRR	\$ 469	\$ 430	\$ (39)	-8%	
54580	Res	\$ 79	\$ 76	\$ (2)	-3%	
54594	FRR	\$ 692	\$ 612	\$ (80)	-12%	
54603	FRR	\$ 198	\$ 188	\$ (10)	-5%	
54618	Res	\$ 262	\$ 249	\$ (13)	-5%	
54636	Res	\$ 334	\$ 313	\$ (21)	-6%	
54639	Res	\$ 213	\$ 207	\$ (5)	-3%	
54652	Res	\$ 179	\$ 181	\$ 2	1%	
54655	Res	\$ 251	\$ 242	\$ (9)	-3%	
54660	FRR	\$ 475	\$ 437	\$ (38)	-8%	
54712	FRR	\$ 351	\$ 315	\$ (36)	-10%	

June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./(Decr.)	Change	
54746	FRR	\$ 262	\$ 243	\$ (20)	-7%	
54753	FRR	\$ 297	\$ 280	\$ (17)	-6%	
54755	FRR	\$ 340	\$ 318	\$ (22)	-7%	
54762	FRR	\$ 363	\$ 333	\$ (30)	-8%	
54782	Res	\$ 269	\$ 265	\$ (4)	-1%	
54810	FRR	\$ 378	\$ 374	\$ (4)	-1%	
54817	Res	\$ 104	\$ 97	\$ (7)	-7%	
54819	Res	\$ 208	\$ 201	\$ (7)	-3%	
54833	Res	\$ 140	\$ 131	\$ (9)	-6%	
54838	Res	\$ 181	\$ 170	\$ (10)	-6%	

**Appendix F**  
**Bill Impact Assessment -**  
**Technology Only Consumers**

**Sioux Valley Energy**  
**2011 EmPOWER CPP Evaluation**  
**Bill Impact Assessment -- Technology Only Consumers**

Total Group	Summary Statistics <sup>1</sup>			
	Standard	CPP	Incr./(Decr.)	Percent
Total	\$ 96,824	\$ 89,998	\$ (6,826)	-7.1%
Annual Average	\$ 375	\$ 349	\$ (26)	-7.1%
Monthly Average	\$ 125	\$ 116	\$ (9)	-7.1%
Median				-5.8%
Max Percent				5.6%
Min Percent				-20.3%
Bill Increase Frequency				14
Bill Decrease Frequency				244
Sum of Increases	\$ 2,762	\$ 2,817	\$ 55	2.0%
Sum of Decreases	\$ 94,062	\$ 87,181	\$ (6,881)	-7.3%
Ave Annual Increase	\$ 197	\$ 201	\$ 4	2.0%
Ave Annual Decrease	\$ 386	\$ 357	\$ (28)	-7.3%

<sup>1</sup> Based on data for June 2011 to August 2011.

June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./(Decr.)	Change	
50234	FRR	\$ 496	\$ 457	\$ (39)	-8%	
50414	FRR	\$ 840	\$ 720	\$ (121)	-14%	
50425	FRR	\$ 287	\$ 266	\$ (21)	-7%	
50437	FRR	\$ 269	\$ 256	\$ (13)	-5%	
50444	FRR	\$ 330	\$ 298	\$ (31)	-9%	
50475	FRR	\$ 399	\$ 368	\$ (31)	-8%	
50488	FRR	\$ 309	\$ 296	\$ (13)	-4%	
50502	FRR	\$ 351	\$ 330	\$ (21)	-6%	
50515	FRR	\$ 346	\$ 314	\$ (32)	-9%	
50521	FRR	\$ 1,320	\$ 1,195	\$ (125)	-9%	
50543	FRR	\$ 286	\$ 262	\$ (24)	-9%	
50554	FRR	\$ 262	\$ 260	\$ (2)	-1%	
50579	FRR	\$ 500	\$ 469	\$ (31)	-6%	
50585	FRR	\$ 589	\$ 503	\$ (86)	-15%	
50590	FRR	\$ 842	\$ 799	\$ (43)	-5%	
50596	Res	\$ 371	\$ 359	\$ (12)	-3%	
50604	FRR	\$ 258	\$ 245	\$ (13)	-5%	
50616	FRR	\$ 468	\$ 435	\$ (33)	-7%	
50660	Res	\$ 233	\$ 217	\$ (15)	-7%	
50689	FRR	\$ 218	\$ 208	\$ (11)	-5%	
50707	FRR	\$ 299	\$ 276	\$ (23)	-8%	
50729	FRR	\$ 555	\$ 517	\$ (38)	-7%	
50785	FRR	\$ 270	\$ 242	\$ (28)	-10%	

June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./(Decr.)	Change	
50964	FRR	\$ 395	\$ 362	\$ (33)	-8%	
50984	FRR	\$ 443	\$ 414	\$ (28)	-6%	
51068	FRR	\$ 341	\$ 327	\$ (13)	-4%	
51083	FRR	\$ 270	\$ 264	\$ (6)	-2%	
51084	FRR	\$ 341	\$ 322	\$ (20)	-6%	
51255	FRR	\$ 270	\$ 260	\$ (10)	-4%	
51278	FRR	\$ 382	\$ 363	\$ (19)	-5%	
51299	FRR	\$ 233	\$ 217	\$ (17)	-7%	
51314	FRR	\$ 438	\$ 395	\$ (43)	-10%	
51343	FRR	\$ 752	\$ 687	\$ (65)	-9%	
51375	FRR	\$ 304	\$ 291	\$ (13)	-4%	
51388	Res	\$ 208	\$ 197	\$ (11)	-5%	
51399	Res	\$ 72	\$ 71	\$ (1)	-1%	
51427	FRR	\$ 356	\$ 325	\$ (31)	-9%	
51436	Res	\$ 105	\$ 103	\$ (1)	-1%	
51442	Res	\$ 316	\$ 297	\$ (19)	-6%	
51476	FRR	\$ 418	\$ 382	\$ (35)	-8%	
51481	FRR	\$ 277	\$ 264	\$ (13)	-5%	
51493	FRR	\$ 477	\$ 444	\$ (33)	-7%	
51525	FRR	\$ 379	\$ 345	\$ (34)	-9%	
51578	FRR	\$ 1,041	\$ 920	\$ (121)	-12%	
51599	FRR	\$ 352	\$ 340	\$ (12)	-4%	
51612	FRR	\$ 267	\$ 243	\$ (24)	-9%	
51811	Res	\$ 284	\$ 273	\$ (11)	-4%	
51834	FRR	\$ 443	\$ 409	\$ (34)	-8%	
51838	Res	\$ 228	\$ 223	\$ (6)	-2%	
51839	Res	\$ 205	\$ 198	\$ (7)	-4%	
51841	FRR	\$ 241	\$ 220	\$ (21)	-9%	
51903	FRR	\$ 221	\$ 206	\$ (15)	-7%	
51923	FRR	\$ 484	\$ 447	\$ (38)	-8%	
51957	Res	\$ 237	\$ 224	\$ (13)	-5%	
51962	Res	\$ 132	\$ 120	\$ (12)	-9%	
51971	Res	\$ 260	\$ 251	\$ (9)	-3%	
51975	FRR	\$ 232	\$ 219	\$ (13)	-6%	
51999	FRR	\$ 238	\$ 221	\$ (17)	-7%	
52001	Res	\$ 156	\$ 159	\$ 3	2%	
52002	Res	\$ 203	\$ 196	\$ (7)	-3%	
52006	Res	\$ 74	\$ 71	\$ (3)	-4%	
52016	Res	\$ 153	\$ 142	\$ (11)	-7%	
52042	Res	\$ 88	\$ 81	\$ (7)	-8%	
52080	Res	\$ 302	\$ 284	\$ (18)	-6%	
52090	FRR	\$ 236	\$ 223	\$ (13)	-5%	
52103	FRR	\$ 812	\$ 763	\$ (49)	-6%	
52124	FRR	\$ 272	\$ 261	\$ (11)	-4%	
52126	Res	\$ 257	\$ 244	\$ (12)	-5%	



June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./(Decr.)	Change	
52172	FRR	\$ 179	\$ 168	\$ (11)	-6%	
52183	FRR	\$ 1,126	\$ 897	\$ (228)	-20%	
52190	FRR	\$ 565	\$ 532	\$ (33)	-6%	
52198	FRR	\$ 248	\$ 237	\$ (11)	-4%	
52210	FRR	\$ 125	\$ 121	\$ (3)	-3%	
52224	FRR	\$ 119	\$ 114	\$ (4)	-4%	
52246	FRR	\$ 273	\$ 264	\$ (8)	-3%	
52261	FRR	\$ 488	\$ 452	\$ (37)	-7%	
52265	FRR	\$ 442	\$ 393	\$ (49)	-11%	
52289	FRR	\$ 279	\$ 258	\$ (21)	-7%	
52336	Res	\$ 279	\$ 272	\$ (7)	-2%	
52357	FRR	\$ 745	\$ 713	\$ (33)	-4%	
52386	FRR	\$ 366	\$ 336	\$ (30)	-8%	
52405	FRR	\$ 521	\$ 485	\$ (36)	-7%	
52410	Res	\$ 204	\$ 208	\$ 4	2%	
52416	Res	\$ 94	\$ 87	\$ (6)	-6%	
52431	FRR	\$ 475	\$ 450	\$ (25)	-5%	
52445	FRR	\$ 393	\$ 364	\$ (29)	-7%	
52505	FRR	\$ 638	\$ 598	\$ (40)	-6%	
52510	FRR	\$ 303	\$ 308	\$ 5	2%	
52529	FRR	\$ 419	\$ 375	\$ (44)	-10%	
52534	Res	\$ 153	\$ 141	\$ (12)	-8%	
52538	Res	\$ 214	\$ 213	\$ (1)	0%	
52542	Res	\$ 319	\$ 301	\$ (17)	-5%	
52648	FRR	\$ 352	\$ 326	\$ (26)	-8%	
53165	Res	\$ 325	\$ 313	\$ (12)	-4%	
53170	Res	\$ 226	\$ 203	\$ (23)	-10%	
53172	Res	\$ 151	\$ 136	\$ (15)	-10%	
53190	Res	\$ 142	\$ 134	\$ (8)	-6%	
53212	Res	\$ 79	\$ 73	\$ (7)	-8%	
53433	FRR	\$ 110	\$ 106	\$ (4)	-4%	
53437	Res	\$ 160	\$ 151	\$ (8)	-5%	
53442	Res	\$ 137	\$ 136	\$ (1)	-1%	
53444	Res	\$ 231	\$ 223	\$ (7)	-3%	
53450	Res	\$ 293	\$ 275	\$ (18)	-6%	
53451	Res	\$ 192	\$ 202	\$ 10	5%	
53463	FRR	\$ 440	\$ 404	\$ (36)	-8%	
53470	Res	\$ 272	\$ 257	\$ (15)	-6%	
53473	Res	\$ 452	\$ 431	\$ (20)	-4%	
53609	FRR	\$ 277	\$ 270	\$ (7)	-3%	
53640	Res	\$ 180	\$ 167	\$ (12)	-7%	
54333	FRR	\$ 456	\$ 414	\$ (42)	-9%	
54418	Res	\$ 235	\$ 226	\$ (9)	-4%	
54419	FRR	\$ 220	\$ 213	\$ (7)	-3%	
54424	Res	\$ 366	\$ 346	\$ (20)	-5%	

June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./.(Decr.)	Change	
54427	Res	\$ 156	\$ 143	\$ (14)	-9%	
54428	FRR	\$ 196	\$ 187	\$ (8)	-4%	
54449	FRR	\$ 421	\$ 394	\$ (28)	-7%	
54533	Res	\$ 281	\$ 252	\$ (29)	-10%	
54535	Res	\$ 263	\$ 266	\$ 2	1%	
54594	FRR	\$ 692	\$ 612	\$ (80)	-12%	
54636	Res	\$ 334	\$ 313	\$ (21)	-6%	
54660	FRR	\$ 475	\$ 437	\$ (38)	-8%	
54712	FRR	\$ 351	\$ 315	\$ (36)	-10%	
54746	FRR	\$ 262	\$ 243	\$ (20)	-7%	
54753	FRR	\$ 297	\$ 280	\$ (17)	-6%	
54782	Res	\$ 269	\$ 265	\$ (4)	-1%	
54817	Res	\$ 104	\$ 97	\$ (7)	-7%	
54843	FRR	\$ 153	\$ 144	\$ (10)	-6%	
54845	Res	\$ 191	\$ 180	\$ (11)	-6%	
54857	Res	\$ 250	\$ 239	\$ (11)	-4%	
54874	FRR	\$ 347	\$ 316	\$ (32)	-9%	
54900	Res	\$ 173	\$ 183	\$ 10	6%	
54913	Res	\$ 158	\$ 155	\$ (3)	-2%	
54914	Res	\$ 179	\$ 181	\$ 2	1%	
54915	FRR	\$ 138	\$ 131	\$ (7)	-5%	
54945	Res	\$ 189	\$ 183	\$ (6)	-3%	
54946	Res	\$ 162	\$ 149	\$ (13)	-8%	
54950	Res	\$ 132	\$ 135	\$ 3	2%	
54951	Res	\$ 247	\$ 236	\$ (11)	-5%	
54956	Res	\$ 127	\$ 127	\$ 1	1%	
54964	Res	\$ 179	\$ 170	\$ (9)	-5%	
54969	Res	\$ 236	\$ 229	\$ (7)	-3%	
54979	Res	\$ 429	\$ 408	\$ (22)	-5%	
54980	Res	\$ 280	\$ 281	\$ 1	0%	
54981	Res	\$ 295	\$ 278	\$ (17)	-6%	
54982	Res	\$ 122	\$ 118	\$ (4)	-4%	
54983	Res	\$ 171	\$ 161	\$ (9)	-5%	
54988	Res	\$ 302	\$ 294	\$ (8)	-3%	
55008	Res	\$ 221	\$ 211	\$ (10)	-5%	
55010	Res	\$ 172	\$ 163	\$ (10)	-6%	
55015	Res	\$ 120	\$ 125	\$ 6	5%	
55021	Res	\$ 294	\$ 287	\$ (7)	-2%	
55023	Res	\$ 290	\$ 261	\$ (29)	-10%	
55036	Res	\$ 454	\$ 415	\$ (39)	-9%	
55039	Res	\$ 276	\$ 264	\$ (12)	-4%	
55065	FRR	\$ 492	\$ 456	\$ (36)	-7%	
55074	Res	\$ 310	\$ 293	\$ (16)	-5%	
55075	Res	\$ 278	\$ 272	\$ (6)	-2%	
55085	Res	\$ 139	\$ 136	\$ (3)	-2%	

June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./.(Decr.)	Change	
55120	Res	\$ 213	\$ 211	\$ (2)	-1%	
55121	Res	\$ 266	\$ 255	\$ (11)	-4%	
55139	FRR	\$ 1,113	\$ 982	\$ (131)	-12%	
55145	FRR	\$ 1,242	\$ 1,130	\$ (112)	-9%	
55160	Res	\$ 110	\$ 106	\$ (4)	-4%	
55188	FRR	\$ 237	\$ 217	\$ (20)	-9%	
55219	FRR	\$ 472	\$ 445	\$ (27)	-6%	
55229	Res	\$ 228	\$ 200	\$ (28)	-12%	
55232	FRR	\$ 178	\$ 165	\$ (13)	-7%	
55237	Res	\$ 300	\$ 285	\$ (15)	-5%	
55238	Res	\$ 230	\$ 208	\$ (22)	-9%	
55245	Res	\$ 138	\$ 128	\$ (10)	-7%	
55266	Res	\$ 393	\$ 369	\$ (24)	-6%	
55267	Res	\$ 246	\$ 249	\$ 3	1%	
55273	Res	\$ 243	\$ 229	\$ (14)	-6%	
55276	FRR	\$ 159	\$ 152	\$ (7)	-4%	
55288	Res	\$ 193	\$ 181	\$ (13)	-7%	
55295	Res	\$ 204	\$ 187	\$ (18)	-9%	
55299	Res	\$ 185	\$ 189	\$ 4	2%	
55302	Res	\$ 201	\$ 203	\$ 1	1%	
55317	Res	\$ 204	\$ 202	\$ (2)	-1%	
55330	Res	\$ 179	\$ 170	\$ (9)	-5%	
55332	Res	\$ 278	\$ 272	\$ (7)	-2%	
55341	FRR	\$ 228	\$ 221	\$ (7)	-3%	
55344	Res	\$ 151	\$ 146	\$ (5)	-4%	
55350	Res	\$ 204	\$ 198	\$ (6)	-3%	
55363	Res	\$ 232	\$ 220	\$ (12)	-5%	
55958	FRR	\$ 329	\$ 300	\$ (28)	-9%	
56007	FRR	\$ 411	\$ 381	\$ (30)	-7%	
70093	FRR	\$ 208	\$ 199	\$ (9)	-4%	
70228	FRR	\$ 1,654	\$ 1,586	\$ (68)	-4%	
70238	FRR	\$ 450	\$ 432	\$ (18)	-4%	
70274	FRR	\$ 351	\$ 315	\$ (37)	-10%	
70298	Res	\$ 426	\$ 395	\$ (32)	-7%	
70400	FRR	\$ 708	\$ 668	\$ (40)	-6%	
70440	FRR	\$ 316	\$ 286	\$ (30)	-9%	
70457	FRR	\$ 397	\$ 370	\$ (27)	-7%	
70463	FRR	\$ 1,197	\$ 1,115	\$ (82)	-7%	
70565	FRR	\$ 528	\$ 498	\$ (30)	-6%	
70604	FRR	\$ 350	\$ 332	\$ (19)	-5%	
70725	FRR	\$ 490	\$ 435	\$ (55)	-11%	
70783	FRR	\$ 289	\$ 273	\$ (17)	-6%	
70834	FRR	\$ 256	\$ 242	\$ (14)	-5%	
70866	FRR	\$ 318	\$ 298	\$ (20)	-6%	
70878	FRR	\$ 1,465	\$ 1,350	\$ (115)	-8%	

June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./.(Decr.)	Change	
70890	FRR	\$ 363	\$ 324	\$ (39)	-11%	
70909	FRR	\$ 379	\$ 347	\$ (31)	-8%	
70954	FRR	\$ 188	\$ 178	\$ (11)	-6%	
70959	FRR	\$ 467	\$ 454	\$ (12)	-3%	
70972	FRR	\$ 100	\$ 97	\$ (3)	-3%	
70974	FRR	\$ 2,548	\$ 2,264	\$ (284)	-11%	
70987	FRR	\$ 2,343	\$ 2,093	\$ (250)	-11%	
71077	FRR	\$ 322	\$ 282	\$ (40)	-12%	
71118	FRR	\$ 1,342	\$ 1,264	\$ (77)	-6%	
71184	FRR	\$ 541	\$ 493	\$ (48)	-9%	
71197	FRR	\$ 427	\$ 399	\$ (28)	-7%	
71351	FRR	\$ 229	\$ 219	\$ (10)	-4%	
71361	FRR	\$ 309	\$ 287	\$ (22)	-7%	
71376	FRR	\$ 243	\$ 223	\$ (20)	-8%	
71399	FRR	\$ 252	\$ 233	\$ (19)	-8%	
71406	FRR	\$ 111	\$ 109	\$ (2)	-2%	
71430	FRR	\$ 1,440	\$ 1,337	\$ (103)	-7%	
71556	FRR	\$ 195	\$ 182	\$ (13)	-6%	
71574	FRR	\$ 227	\$ 215	\$ (11)	-5%	
71609	FRR	\$ 210	\$ 198	\$ (12)	-6%	
72127	FRR	\$ 421	\$ 390	\$ (31)	-7%	
72170	FRR	\$ 280	\$ 267	\$ (13)	-5%	
72206	FRR	\$ 387	\$ 356	\$ (32)	-8%	
72215	FRR	\$ 471	\$ 427	\$ (44)	-9%	
72312	FRR	\$ 116	\$ 114	\$ (2)	-1%	
72324	FRR	\$ 333	\$ 306	\$ (27)	-8%	
72366	FRR	\$ 416	\$ 383	\$ (33)	-8%	
72431	Res	\$ 367	\$ 345	\$ (22)	-6%	
72476	FRR	\$ 227	\$ 216	\$ (11)	-5%	
72493	FRR	\$ 487	\$ 464	\$ (23)	-5%	
72505	FRR	\$ 225	\$ 208	\$ (17)	-7%	
72534	FRR	\$ 239	\$ 227	\$ (13)	-5%	
72580	FRR	\$ 195	\$ 184	\$ (11)	-6%	
72626	FRR	\$ 312	\$ 296	\$ (17)	-5%	
72754	FRR	\$ 610	\$ 582	\$ (28)	-5%	
72762	FRR	\$ 410	\$ 375	\$ (34)	-8%	
72772	FRR	\$ 361	\$ 335	\$ (26)	-7%	
72791	FRR	\$ 369	\$ 360	\$ (9)	-3%	
72809	FRR	\$ 262	\$ 243	\$ (19)	-7%	
85023	FRR	\$ 697	\$ 678	\$ (19)	-3%	
85072	FRR	\$ 452	\$ 422	\$ (30)	-7%	
85085	FRR	\$ 277	\$ 258	\$ (19)	-7%	
85225	FRR	\$ 322	\$ 305	\$ (16)	-5%	
85298	FRR	\$ 2,758	\$ 2,441	\$ (317)	-11%	
85312	FRR	\$ 606	\$ 541	\$ (65)	-11%	

June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./(Decr.)	Change	
85328	FRR	\$ 541	\$ 481	\$ (59)	-11%	
85329	FRR	\$ 284	\$ 261	\$ (23)	-8%	
85335	FRR	\$ 571	\$ 556	\$ (15)	-3%	
85342	FRR	\$ 396	\$ 350	\$ (46)	-12%	
85354	FRR	\$ 359	\$ 327	\$ (32)	-9%	
85361	FRR	\$ 250	\$ 234	\$ (15)	-6%	
85524	FRR	\$ 1,060	\$ 939	\$ (121)	-11%	
85549	FRR	\$ 312	\$ 283	\$ (29)	-9%	
85551	FRR	\$ 619	\$ 566	\$ (52)	-8%	
100002	Res	\$ 265	\$ 248	\$ (17)	-6%	

**Appendix G**  
**Bill Impact Assessment -**  
**Control Group Consumers**

**Sioux Valley Energy**  
**2011 EmPOWER CPP Evaluation**  
**Bill Impact Assessment -- Control Group Consumers**

Total Group	Summary Statistics <sup>1</sup>			
	Standard	CPP	Incr./(Decr.)	Percent
Total	\$ 111,216	\$ 104,246	\$ (6,970)	-6.3%
Annual Average	\$ 406	\$ 380	\$ (25)	-6.3%
Monthly Average	\$ 135	\$ 127	\$ (8)	-6.3%
Median				-5.6%
Max Percent				8.2%
Min Percent				-14.0%
Bill Increase Frequency				24
Bill Decrease Frequency				250
Sum of Increases	\$ 4,863	\$ 4,976	\$ 113	2.3%
Sum of Decreases	\$ 106,353	\$ 99,270	\$ (7,083)	-6.7%
Ave Annual Increase	\$ 203	\$ 207	\$ 5	2.3%
Ave Annual Decrease	\$ 425	\$ 397	\$ (28)	-6.7%

<sup>1</sup> Based on data for June 2011 to August 2011.

June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./(Decr.)	Change	
50197	FRR	\$ 254	\$ 233	\$ (21)	-8%	
50225	FRR	\$ 718	\$ 702	\$ (16)	-2%	
50301	FRR	\$ 660	\$ 568	\$ (93)	-14%	
50572	FRR	\$ 276	\$ 252	\$ (24)	-9%	
50603	FRR	\$ 357	\$ 356	\$ (1)	0%	
50608	Res	\$ 199	\$ 193	\$ (6)	-3%	
50615	FRR	\$ 238	\$ 222	\$ (16)	-7%	
50621	FRR	\$ 205	\$ 193	\$ (12)	-6%	
50662	Res	\$ 234	\$ 243	\$ 9	4%	
50718	FRR	\$ 166	\$ 163	\$ (3)	-2%	
50733	FRR	\$ 845	\$ 776	\$ (70)	-8%	
50967	FRR	\$ 319	\$ 292	\$ (27)	-9%	
51010	FRR	\$ 326	\$ 307	\$ (18)	-6%	
51035	FRR	\$ 908	\$ 830	\$ (78)	-9%	
51040	FRR	\$ 489	\$ 459	\$ (29)	-6%	
51067	FRR	\$ 263	\$ 257	\$ (6)	-2%	
51100	FRR	\$ 243	\$ 236	\$ (8)	-3%	
51104	FRR	\$ 545	\$ 512	\$ (33)	-6%	
51106	FRR	\$ 1,491	\$ 1,329	\$ (162)	-11%	
51142	FRR	\$ 532	\$ 506	\$ (26)	-5%	
51171	FRR	\$ 213	\$ 193	\$ (21)	-10%	
51173	FRR	\$ 976	\$ 895	\$ (81)	-8%	
51178	FRR	\$ 106	\$ 103	\$ (3)	-3%	

June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./(Decr.)	Change	
51192	FRR	\$ 378	\$ 359	\$ (19)	-5%	
51196	FRR	\$ 568	\$ 522	\$ (45)	-8%	
51229	FRR	\$ 390	\$ 359	\$ (31)	-8%	
51237	FRR	\$ 342	\$ 326	\$ (16)	-5%	
51247	FRR	\$ 345	\$ 321	\$ (24)	-7%	
51274	FRR	\$ 377	\$ 350	\$ (27)	-7%	
51289	FRR	\$ 306	\$ 279	\$ (27)	-9%	
51327	FRR	\$ 555	\$ 514	\$ (41)	-7%	
51331	FRR	\$ 162	\$ 151	\$ (11)	-7%	
51338	FRR	\$ 506	\$ 466	\$ (40)	-8%	
51366	Res	\$ 108	\$ 106	\$ (2)	-2%	
51369	Res	\$ 214	\$ 201	\$ (13)	-6%	
51416	Res	\$ 132	\$ 128	\$ (5)	-4%	
51422	Res	\$ 97	\$ 94	\$ (3)	-3%	
51434	Res	\$ 205	\$ 203	\$ (2)	-1%	
51441	Res	\$ 121	\$ 122	\$ 1	1%	
51462	Res	\$ 145	\$ 132	\$ (13)	-9%	
51485	FRR	\$ 354	\$ 341	\$ (13)	-4%	
51494	FRR	\$ 202	\$ 202	\$ (0)	0%	
51527	Res	\$ 225	\$ 210	\$ (15)	-6%	
51538	Res	\$ 276	\$ 283	\$ 7	3%	
51541	Res	\$ 94	\$ 88	\$ (6)	-6%	
51555	FRR	\$ 344	\$ 321	\$ (23)	-7%	
51586	FRR	\$ 392	\$ 363	\$ (29)	-7%	
51614	FRR	\$ 248	\$ 229	\$ (19)	-7%	
51625	FRR	\$ 245	\$ 232	\$ (13)	-5%	
51681	FRR	\$ 860	\$ 814	\$ (46)	-5%	
51712	FRR	\$ 287	\$ 270	\$ (17)	-6%	
51720	FRR	\$ 282	\$ 263	\$ (18)	-7%	
51729	FRR	\$ 279	\$ 284	\$ 6	2%	
51764	FRR	\$ 388	\$ 357	\$ (31)	-8%	
51807	FRR	\$ 297	\$ 267	\$ (30)	-10%	
51901	FRR	\$ 499	\$ 466	\$ (33)	-7%	
51911	FRR	\$ 370	\$ 345	\$ (25)	-7%	
51934	Res	\$ 199	\$ 193	\$ (5)	-3%	
51959	FRR	\$ 500	\$ 462	\$ (37)	-7%	
51986	FRR	\$ 487	\$ 442	\$ (44)	-9%	
51993	Res	\$ 168	\$ 153	\$ (15)	-9%	
52013	Res	\$ 105	\$ 97	\$ (8)	-8%	
52017	Res	\$ 160	\$ 158	\$ (2)	-1%	
52045	Res	\$ 446	\$ 416	\$ (30)	-7%	
52047	Res	\$ 149	\$ 136	\$ (13)	-9%	
52079	Res	\$ 418	\$ 398	\$ (20)	-5%	
52106	FRR	\$ 91	\$ 91	\$ 0	1%	
52109	FRR	\$ 314	\$ 300	\$ (14)	-4%	



June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./(Decr.)	Change	
52129	Res	\$ 384	\$ 372	\$ (12)	-3%	
52185	FRR	\$ 224	\$ 202	\$ (21)	-10%	
52202	FRR	\$ 413	\$ 384	\$ (29)	-7%	
52250	FRR	\$ 250	\$ 236	\$ (15)	-6%	
52268	FRR	\$ 412	\$ 379	\$ (33)	-8%	
52277	FRR	\$ 215	\$ 202	\$ (13)	-6%	
52335	Res	\$ 325	\$ 300	\$ (26)	-8%	
52346	FRR	\$ 304	\$ 291	\$ (13)	-4%	
52351	FRR	\$ 127	\$ 123	\$ (4)	-3%	
52363	FRR	\$ 429	\$ 397	\$ (32)	-8%	
52368	Res	\$ 607	\$ 562	\$ (45)	-7%	
52417	Res	\$ 181	\$ 173	\$ (8)	-4%	
52432	FRR	\$ 231	\$ 219	\$ (13)	-5%	
52436	FRR	\$ 192	\$ 181	\$ (11)	-6%	
52440	FRR	\$ 1,005	\$ 921	\$ (84)	-8%	
52494	FRR	\$ 637	\$ 610	\$ (27)	-4%	
52543	Res	\$ 264	\$ 254	\$ (10)	-4%	
52659	FRR	\$ 408	\$ 376	\$ (32)	-8%	
52699	FRR	\$ 362	\$ 336	\$ (26)	-7%	
52720	FRR	\$ 250	\$ 243	\$ (7)	-3%	
53127	Res	\$ 223	\$ 217	\$ (6)	-3%	
53132	FRR	\$ 382	\$ 368	\$ (14)	-4%	
53162	Res	\$ 172	\$ 173	\$ 2	1%	
53175	Res	\$ 196	\$ 194	\$ (3)	-1%	
53191	Res	\$ 293	\$ 279	\$ (14)	-5%	
53219	Res	\$ 289	\$ 277	\$ (11)	-4%	
53220	Res	\$ 247	\$ 233	\$ (14)	-6%	
53416	FRR	\$ 168	\$ 165	\$ (3)	-2%	
53424	Res	\$ 140	\$ 140	\$ (0)	0%	
53436	Res	\$ 325	\$ 326	\$ 1	0%	
53438	Res	\$ 130	\$ 126	\$ (4)	-3%	
53439	Res	\$ 205	\$ 213	\$ 8	4%	
53471	Res	\$ 194	\$ 175	\$ (19)	-10%	
53472	Res	\$ 208	\$ 216	\$ 8	4%	
53476	Res	\$ 182	\$ 196	\$ 15	8%	
53492	Res	\$ 91	\$ 85	\$ (6)	-6%	
53612	FRR	\$ 258	\$ 238	\$ (19)	-7%	
53635	Res	\$ 277	\$ 261	\$ (16)	-6%	
53638	Res	\$ 231	\$ 237	\$ 6	3%	
54351	FRR	\$ 125	\$ 119	\$ (6)	-5%	
54362	FRR	\$ 187	\$ 183	\$ (5)	-3%	
54366	FRR	\$ 179	\$ 167	\$ (12)	-7%	
54388	Res	\$ 231	\$ 232	\$ 0	0%	
54389	FRR	\$ 184	\$ 174	\$ (10)	-5%	
54408	FRR	\$ 425	\$ 397	\$ (28)	-6%	

June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./(Decr.)	Change	
54417	FRR	\$ 227	\$ 217	\$ (10)	-5%	
54425	Res	\$ 243	\$ 239	\$ (4)	-2%	
54426	FRR	\$ 147	\$ 139	\$ (8)	-6%	
54526	FRR	\$ 413	\$ 402	\$ (11)	-3%	
54532	Res	\$ 244	\$ 238	\$ (6)	-3%	
54534	Res	\$ 180	\$ 176	\$ (5)	-3%	
54538	FRR	\$ 469	\$ 430	\$ (39)	-8%	
54580	Res	\$ 79	\$ 76	\$ (2)	-3%	
54603	FRR	\$ 198	\$ 188	\$ (10)	-5%	
54618	Res	\$ 262	\$ 249	\$ (13)	-5%	
54639	Res	\$ 213	\$ 207	\$ (5)	-3%	
54652	Res	\$ 179	\$ 181	\$ 2	1%	
54655	Res	\$ 251	\$ 242	\$ (9)	-3%	
54755	FRR	\$ 340	\$ 318	\$ (22)	-7%	
54762	FRR	\$ 363	\$ 333	\$ (30)	-8%	
54810	FRR	\$ 378	\$ 374	\$ (4)	-1%	
54819	Res	\$ 208	\$ 201	\$ (7)	-3%	
54833	Res	\$ 140	\$ 131	\$ (9)	-6%	
54838	Res	\$ 181	\$ 170	\$ (10)	-6%	
54839	Res	\$ 171	\$ 165	\$ (6)	-3%	
54847	Res	\$ 255	\$ 252	\$ (3)	-1%	
54885	FRR	\$ 274	\$ 263	\$ (11)	-4%	
54919	Res	\$ 221	\$ 207	\$ (14)	-6%	
54923	Res	\$ 231	\$ 226	\$ (5)	-2%	
54930	Res	\$ 195	\$ 194	\$ (1)	0%	
54932	Res	\$ 81	\$ 76	\$ (5)	-6%	
54935	FRR	\$ 430	\$ 416	\$ (13)	-3%	
54938	Res	\$ 154	\$ 159	\$ 5	3%	
54943	Res	\$ 298	\$ 300	\$ 1	0%	
54958	Res	\$ 241	\$ 232	\$ (9)	-4%	
54960	Res	\$ 346	\$ 332	\$ (14)	-4%	
54962	Res	\$ 209	\$ 201	\$ (8)	-4%	
54965	Res	\$ 201	\$ 201	\$ 0	0%	
54976	Res	\$ 296	\$ 281	\$ (15)	-5%	
54977	Res	\$ 285	\$ 275	\$ (10)	-4%	
54984	Res	\$ 171	\$ 177	\$ 6	3%	
54985	Res	\$ 138	\$ 142	\$ 4	3%	
54990	Res	\$ 281	\$ 268	\$ (13)	-5%	
54993	Res	\$ 150	\$ 163	\$ 12	8%	
54995	Res	\$ 202	\$ 198	\$ (4)	-2%	
55005	Res	\$ 213	\$ 200	\$ (13)	-6%	
55007	Res	\$ 256	\$ 252	\$ (4)	-2%	
55009	Res	\$ 165	\$ 156	\$ (9)	-5%	
55011	Res	\$ 252	\$ 256	\$ 4	2%	
55019	Res	\$ 138	\$ 135	\$ (4)	-3%	

June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./(Decr.)	Change	
55040	Res	\$ 297	\$ 290	\$ (7)	-2%	
55043	Res	\$ 233	\$ 218	\$ (15)	-7%	
55045	Res	\$ 167	\$ 169	\$ 1	1%	
55046	Res	\$ 270	\$ 256	\$ (13)	-5%	
55048	FRR	\$ 352	\$ 342	\$ (10)	-3%	
55083	Res	\$ 210	\$ 200	\$ (11)	-5%	
55084	Res	\$ 417	\$ 402	\$ (15)	-4%	
55086	Res	\$ 334	\$ 320	\$ (14)	-4%	
55089	FRR	\$ 478	\$ 442	\$ (36)	-8%	
55103	Res	\$ 396	\$ 368	\$ (28)	-7%	
55122	Res	\$ 232	\$ 232	\$ 0	0%	
55162	Res	\$ 206	\$ 195	\$ (11)	-5%	
55167	Res	\$ 233	\$ 221	\$ (12)	-5%	
55170	Res	\$ 42	\$ 42	\$ (0)	0%	
55195	Res	\$ 118	\$ 107	\$ (11)	-9%	
55231	FRR	\$ 426	\$ 425	\$ (1)	0%	
55246	Res	\$ 261	\$ 268	\$ 7	3%	
55252	FRR	\$ 236	\$ 223	\$ (12)	-5%	
55253	FRR	\$ 323	\$ 299	\$ (24)	-8%	
55268	Res	\$ 231	\$ 224	\$ (7)	-3%	
55269	Res	\$ 370	\$ 364	\$ (6)	-2%	
55270	Res	\$ 107	\$ 102	\$ (5)	-4%	
55271	Res	\$ 164	\$ 164	\$ (0)	0%	
55291	Res	\$ 254	\$ 241	\$ (13)	-5%	
55311	FRR	\$ 293	\$ 272	\$ (20)	-7%	
55312	FRR	\$ 1,653	\$ 1,477	\$ (176)	-11%	
55347	Res	\$ 266	\$ 247	\$ (19)	-7%	
55361	Res	\$ 105	\$ 112	\$ 7	7%	
55362	Res	\$ 467	\$ 432	\$ (35)	-8%	
55923	FRR	\$ 265	\$ 256	\$ (9)	-3%	
55925	FRR	\$ 110	\$ 105	\$ (5)	-4%	
55940	FRR	\$ 218	\$ 202	\$ (17)	-8%	
55959	FRR	\$ 370	\$ 348	\$ (23)	-6%	
55962	FRR	\$ 275	\$ 257	\$ (18)	-6%	
55983	FRR	\$ 488	\$ 442	\$ (45)	-9%	
70014	FRR	\$ 1,613	\$ 1,496	\$ (117)	-7%	
70034	FRR	\$ 968	\$ 886	\$ (82)	-8%	
70085	FRR	\$ 2,591	\$ 2,243	\$ (349)	-13%	
70210	FRR	\$ 528	\$ 506	\$ (22)	-4%	
70257	FRR	\$ 490	\$ 469	\$ (21)	-4%	
70270	FRR	\$ 473	\$ 423	\$ (50)	-11%	
70320	FRR	\$ 1,510	\$ 1,431	\$ (79)	-5%	
70329	FRR	\$ 481	\$ 457	\$ (24)	-5%	
70332	FRR	\$ 170	\$ 163	\$ (7)	-4%	
70355	FRR	\$ 698	\$ 647	\$ (50)	-7%	

June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./.(Decr.)	Change	
70358	FRR	\$ 171	\$ 157	\$ (14)	-8%	
70373	FRR	\$ 613	\$ 564	\$ (50)	-8%	
70381	FRR	\$ 809	\$ 734	\$ (75)	-9%	
70420	FRR	\$ 444	\$ 408	\$ (37)	-8%	
70435	FRR	\$ 330	\$ 304	\$ (27)	-8%	
70438	FRR	\$ 1,207	\$ 1,104	\$ (102)	-8%	
70446	FRR	\$ 275	\$ 263	\$ (12)	-4%	
70447	FRR	\$ 390	\$ 366	\$ (24)	-6%	
70454	FRR	\$ 369	\$ 339	\$ (30)	-8%	
70495	FRR	\$ 478	\$ 446	\$ (32)	-7%	
70553	FRR	\$ 1,246	\$ 1,135	\$ (111)	-9%	
70659	FRR	\$ 202	\$ 197	\$ (5)	-3%	
70692	FRR	\$ 565	\$ 529	\$ (35)	-6%	
70720	FRR	\$ 298	\$ 282	\$ (15)	-5%	
70730	FRR	\$ 668	\$ 615	\$ (54)	-8%	
70739	FRR	\$ 492	\$ 466	\$ (26)	-5%	
70773	FRR	\$ 269	\$ 251	\$ (18)	-7%	
70779	FRR	\$ 348	\$ 319	\$ (29)	-8%	
70841	FRR	\$ 475	\$ 426	\$ (49)	-10%	
70919	FRR	\$ 132	\$ 124	\$ (8)	-6%	
70924	FRR	\$ 2,385	\$ 2,299	\$ (87)	-4%	
70962	FRR	\$ 236	\$ 215	\$ (21)	-9%	
71032	FRR	\$ 327	\$ 306	\$ (20)	-6%	
71066	FRR	\$ 406	\$ 385	\$ (21)	-5%	
71076	FRR	\$ 994	\$ 953	\$ (41)	-4%	
71112	FRR	\$ 342	\$ 315	\$ (27)	-8%	
71122	FRR	\$ 1,925	\$ 1,834	\$ (91)	-5%	
71158	FRR	\$ 2,248	\$ 2,120	\$ (128)	-6%	
71213	FRR	\$ 155	\$ 145	\$ (10)	-6%	
71216	FRR	\$ 242	\$ 228	\$ (14)	-6%	
71252	FRR	\$ 454	\$ 423	\$ (30)	-7%	
71343	FRR	\$ 492	\$ 452	\$ (40)	-8%	
71364	FRR	\$ 156	\$ 144	\$ (12)	-8%	
71420	FRR	\$ 231	\$ 223	\$ (8)	-3%	
71562	FRR	\$ 937	\$ 850	\$ (88)	-9%	
71565	FRR	\$ 405	\$ 385	\$ (21)	-5%	
71605	FRR	\$ 362	\$ 325	\$ (37)	-10%	
71623	FRR	\$ 1,372	\$ 1,231	\$ (141)	-10%	
71625	FRR	\$ 224	\$ 217	\$ (7)	-3%	
71998	FRR	\$ 361	\$ 330	\$ (31)	-9%	
72023	FRR	\$ 442	\$ 419	\$ (23)	-5%	
72053	FRR	\$ 760	\$ 734	\$ (26)	-3%	
72060	FRR	\$ 452	\$ 411	\$ (41)	-9%	
72165	FRR	\$ 663	\$ 625	\$ (38)	-6%	
72169	FRR	\$ 248	\$ 240	\$ (9)	-3%	

June 2011 to August 2011 Rate Comparison By Account						
Account	Rate	Default	CPP	Incr./(Decr.)	Change	
72176	FRR	\$ 745	\$ 715	\$ (30)	-4%	
72231	FRR	\$ 300	\$ 284	\$ (15)	-5%	
72285	FRR	\$ 552	\$ 512	\$ (40)	-7%	
72306	FRR	\$ 692	\$ 646	\$ (46)	-7%	
72323	FRR	\$ 501	\$ 455	\$ (47)	-9%	
72425	FRR	\$ 308	\$ 290	\$ (19)	-6%	
72512	FRR	\$ 398	\$ 369	\$ (29)	-7%	
72631	FRR	\$ 340	\$ 319	\$ (21)	-6%	
72657	FRR	\$ 332	\$ 314	\$ (17)	-5%	
72674	FRR	\$ 306	\$ 282	\$ (25)	-8%	