

August 1, 2014

***VIA ELECTRONIC FILING
AND OVERNIGHT DELIVERY***

Washington Utilities and Transportation Commission
1300 S. Evergreen Park Drive, S.W.
P.O. Box 47250
Olympia, Washington 98504-7250

Attn: Steven V. King
Executive Director and Secretary

**RE: Docket No. UE-130043 – Compliance Filing Replacement
Results of Washington Residential Consumption Survey**

On July 31, 2014, Pacific Power & Light Company (Pacific Power or Company) submitted a compliance filing with the report and results from the residential consumption survey, as required by the Partial Settlement Regarding Cost of Service, Rate Spread, and Rate Design in the above-referenced proceeding. The Company is resubmitting this filing in order to designate as confidential certain detailed customer data included in the original filing. This information is designated confidential under RCW 80.04.095 and submitted in accordance with the provisions of WAC 480-07-160.

Data requests should be addressed in the following manner:

By email (preferred): datarequest@pacificorp.com

By regular Mail: Data Request Response Center
PacifiCorp
825 NE Multnomah Street, Suite 2000
Portland, OR 97232

If you have any questions regarding this filing, please contact Joelle Steward at (503) 813-5542.

Sincerely,



R. Bryce Dalley
Vice President, Regulation

Cc: Service List Docket UE-140762

CERTIFICATE OF SERVICE

I hereby certify that I have this day served this document upon all parties of record in this proceeding by electronic mail.

Washington Utilities & Transportation Commission

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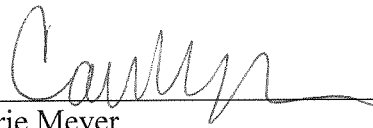
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DATED at Portland, OR this 1st day of August 2014.



Carrie Meyer
Supervisor, Regulatory Operations

Washington Residential Energy Consumption Study

BACKGROUND

As part of the Partial Settlement Regarding Cost of Service, Rate Spread, and Rate Design in Docket UE-130043, the Company agreed to conduct and provide to all parties by July 31, 2014, a survey on residential end-use consumption and rate design in Washington.

In the spring of 2014, the Company hired Market Decisions Corporation to perform a survey of Washington residential customers. The survey scope included consumption questions on the types of heating and cooling systems, numbers and ages of appliances, types of lighting, energy efficiency measures taken, understanding of current rate design, and demographic/household profiling questions. Market Decisions Corporation was responsible for the survey design, the distribution of the survey to customers, collection of completed surveys, creation of a response database and a final report to the Company that summarized findings on understanding rate design.

RESIDENTIAL CUSTOMER SURVEY

The Washington survey was formatted for both online distribution and response and paper distribution and response. Attachment A is a copy of the survey questionnaire.¹ Survey questions were grouped into six specific categories: Heating, Cooling, Water Heating, Appliance Usage, Understanding Your Electric Bill, and Household Information.

The Company provided Market Decisions a random sub-set of 4,000 Washington residential customers for mailing of paper surveys and 33,806 Washington residential customers for emailing an online survey. Customers receiving the paper survey were also given the opportunity to participate online, if preferred.

A total of 3,787 Washington residential customers responded between May 15 and June 9, 2014, via a combination of paper mail surveys and online surveys. This 11 percent completion rate results in a maximum sampling variability at the 95 percent confidence level of ± 1.6 percent.

SURVEY RESULTS

The results from the survey, including key findings, are shown in Attachments B, C, and D.

- Attachment B contains the survey results prepared and summarized by Market Decisions for questions related to understanding bill usage.

¹ With the exception of the rate design questions, the survey on energy consumption was concurrently sent to residential customers in Washington, California, Wyoming, and Idaho.

- Attachment C contains the summary of key findings for consumption uses and responses to all questions. The detailed responses, which the Company has designated as confidential and subject to the terms of protective order in Docket UE-130043, are broken down between customers on Schedule 16, Residential Service, Schedule 17, Low Income Bill Assistance, and Other which includes Schedule 135, Residential Net Metering, and Schedule 18, Three Phase Residential Service Rider.
- Attachment D contains a breakdown of survey responses based on actual customer usage, age, and income of survey respondents. Market Decisions provided the Company a database of responses by customer, on an anonymous basis, with actual monthly usage for the five-year period June 2009 through May 2014, which enabled the Company to analyze responses based on actual usage. The Company has designated certain detailed data as confidential and subject to the terms of protective order in Docket UE-130043.

ATTACHMENT A

PacifiCorp
WA-CA-WY-ID Residential Energy Usage Survey
Draft Questionnaire
4/23/2014

Landing Page

Thank you for participating in this home energy survey to help **[IF WA or CA: Pacific Power]/ [IF WY or ID: Rocky Mountain Power]** better understand how you use energy. This survey information will support **[IF WA or CA: Pacific Power]/ [IF WY or ID: Rocky Mountain Power]**'s efforts to forecast future energy requirements. The more accurate the forecast is, the more reliably **[IF WA or CA: Pacific Power]/ [IF WY or ID: Rocky Mountain Power]** can serve you in a cost-effective manner.

Please note that your answers are captured each time you click "next," so if you leave and come back to the survey, it will start where you left off. To return to the survey, simply click on the link in the email.

For questions about the survey or data collection, please email **[IF WA or CA: pacificpower@mdcinvite.com]/ [IF WY or ID: rockymountainpower@mdcinvite.com]**.

To begin the survey, please click >>> below.

HEATING

Q1. Which of the following types of heating systems are used at your home? (Q1A: ALLOW MULTIPLE MENTIONS; Q1B: SINGLE MENTION; FORCE RESPONSE TO Q1A AND Q1B; AUTO PUNCH Q1A IF Q1B MENTION IS SELECTED)

	A. All Systems	B. Primary System
	Check <u>all</u> heating systems that are used at your home	Check the <u>one</u> heating system used most at your home
Type of Heating System		
Natural gas heating		
Central forced air furnace	11	11
Hot water or steam	12	12
Boiler	13	13
Natural gas fireplace	31	31
Fireplace insert that uses natural gas	34	34
Other natural gas system	14	14
Electric heating		
Baseboard, wall heaters (without fans)	15	15
Wall heaters with fan	16	16
Central forced air furnace	17	17
Heat pump with natural gas furnace backup	18	18
Heat pump with electric furnace backup	19	19
Heat pump with other backup	20	20
Ductless heat pump	21	21
Radiant surface heating (floor/ceiling/wall)	22	22
Portable heaters	23	23
Electric fireplace	38	38
Fireplace insert that uses electricity	39	39
Other electric system (please type in your "other" electric heating system in the box)	24	24
Oil heating		
Central forced air furnace	25	25
Hot water or steam (upright radiators or baseboards)	26	26
Propane, butane, or kerosene heat		
Central forced air	27	27
Portable heaters	28	28
Other fuels		
Wood stove	29	29
Wood fireplace	30	30
Fireplace insert that uses wood	32	32
Fireplace insert that uses pellets	33	33

Solar with electric backup	35	35
Solar with gas backup	36	36
Biomass	37	37
Other system (please type in your “other” system in the box)	99	99
No heating system	88	88

Q2. What is the age of your primary heating system? **(SINGLE MENTION)**

- 1 0-5 years
- 2 6-10 years
- 3 11-15 years
- 4 16-20 years
- 5 Older than 20 years

IF Q1B=11-14, 18, 27, 28, 31, 34, 36

Q3. You selected natural gas as your primary heating source. Did you replace an electric system? **(SINGLE MENTION)**

- 1 Yes
- 2 No

Q4. Do you use a programmable thermostat for heating? **(SINGLE MENTION)**

- 1 Yes
- 2 No

Cooling

Q5. Which of the following types of cooling systems are used at your home? **(SINGLE MENTION; FORCE RESPONSE; AUTO PUNCH Q5A IF Q5B MENTION IS SELECTED)**

	A. All Systems	B. Primary System
	Check <u>all</u> cooling systems that are used at your home	Check the <u>one</u> cooling system used most at your home
Ductless heat pump	11	11
Window/wall air conditioner	12	12
Portable air conditioner	13	13
Heat pump (a unit that can both heat and cool your home)	14	14
Central electric air conditioner	15	15
Evaporative cooler or swamp cooler	16	16
Ground source heat pump	17	17
Electric portable fan/ceiling fan	18	18
Other cooling system (please type in your “other” system in the box)	99	99
There is no cooling system in my	88	88

home

ASK IF Q5A = 12

Q6. How many window/wall air conditioners are in your home? **(USE DROP DOWN LIST FOR 0-5; FORCE RESPONSE)**

ASK Q7-Q8 IF Q5 NOT 88; SHOW Q7 AND Q8 ON ONE PAGE

Q7. What is the age of your primary cooling system? **(SINGLE MENTION)**

- 1 0-5 years
- 2 6-10 years
- 3 11-15 years
- 4 16-20 years
- 5 Older than 20 years

Q8. Do you use a programmable thermostat for cooling? **(SINGLE MENTION)**

- 1 Yes
- 2 No

SQUARE FOOTAGE

Q9. What is the square footage of your living space? **(ALLOW 100-10,000; FORCE RESPONSE)**

(Please do not include unheated garage, attic, or unfinished space. If you're unsure please provide your best estimate.)

RECORD SQ FT: _____

WATER HEATING

Q10. What type of energy is used to heat all/most of your water? **(SINGLE MENTION; FORCE RESPONSE)**

- 11 Electricity (includes tankless electric water heaters)
- 12 Natural gas (includes tankless gas water heaters)
- 13 Propane, kerosene or butane
- 14 Solar with gas backup
- 15 Solar with electric backup
- 16 Oil
- 99 Other (specify) _____

APPLIANCE USAGE

- Q11. In the table below please type in the number of each type of light bulb you use for inside and outside your home. **(AUTOSUM TOTALS; DO NOT FORCE RESPONSE)**

Please be as accurate as you can. Lighting can make up a large percentage (20%) of a household's usage and it is important to know the different bulb types in the home so that [IF WA OR CA: Pacific Power]/ [IF WY or ID: Rocky Mountain Power] can better forecast your electricity demand.

	Inside	Outside	Total
Incandescent bulbs (filament)			
Compact fluorescent bulbs (spiral or bent tubes)			
Fluorescent tubes			
Halogen tubes			
Halogen bulbs			
LED bulbs			

- Q12. How many refrigerators are plugged in and operating at your home (not including wine coolers)? **(USE DROP DOWN LIST FOR 0-4; FORCE RESPONSE)**

IF Q12>0, SHOW Q13A-D ON THE SAME PAGE

- Q13A. What is the age of your newest refrigerator? **(SINGLE MENTION)**

- 1 0-3 years
- 2 4-6 years
- 3 7-10 years
- 5 Older than 10 years

ASK Q13B IF Q12>1

- Q13B. What is the age of your 2nd newest refrigerator? **(SINGLE MENTION; Q13B RESPONSE MUST BE >=Q13A RESPONSE)**

- 1 0-3 years
- 2 4-6 years
- 3 7-10 years
- 5 Older than 10 years

ASK Q13C IF Q12>2

- Q13C. What is the age of your 3rd newest refrigerator? **(SINGLE MENTION; Q13C RESPONSE MUST BE >=Q13B RESPONSE)**

- 1 0-3 years
- 2 4-6 years
- 3 7-10 years
- 5 Older than 10 years

ASK Q13D IF Q12>3

Q13D. What is the age of your 4th newest refrigerator? **(SINGLE MENTION; Q13D RESPONSE MUST BE >=Q13C RESPONSE)**

- 1 0-3 years
- 2 4-6 years
- 3 7-10 years
- 5 Older than 10 years

Q14. How many standalone freezers are plugged in at your home? (not including the one attached to a refrigerator)? **(FORCE RESPONSE)**

- 1 One
- 2 Two
- 3 Three
- 4 Four

IF Q14>0, SHOW Q15A-D ON THE SAME PAGE

Q15A. What is the age of your newest freezer? **(SINGLE MENTION)**

- 1 0-3 years
- 2 4-6 years
- 3 7-10 years
- 5 Older than 10 years

ASK Q15B IF Q14>1

Q15B. What is the age of your 2nd newest freezer? **(SINGLE MENTION; Q15B RESPONSE MUST BE >=Q15A RESPONSE)**

- 1 0-3 years
- 2 4-6 years
- 3 7-10 years
- 5 Older than 10 years

ASK Q15C IF Q14>2

Q15C. What is the age of your 3rd newest freezer? **(SINGLE MENTION; Q15C RESPONSE MUST BE >=Q15B RESPONSE)**

- 1 0-3 years
- 2 4-6 years
- 3 7-10 years
- 5 Older than 10 years

ASK Q15D IF Q14>3

Q15D. What is the age of your 4th newest freezer? **(SINGLE MENTION; Q15D RESPONSE MUST BE >=Q15C RESPONSE)**

- 1 0-3 years
- 2 4-6 years
- 3 7-10 years
- 5 Older than 10 years

SHOW Q16 AND Q17 ON ONE PAGE

Q16. Please describe your stove top (range) and oven fuel.

- 1 Electric
- 2 Natural gas
- 3 Electric and natural gas

Q17. How many ovens do you have in your home? **(FORCE RESPONSE)**

- 0 None
- 1 One
- 2 Two
- 3 Three
- 4 Four

SHOW Q18-Q20 ON ONE PAGE

Q18. How many microwave ovens do you have in your home? **(FORCE RESPONSE)**

- 1 One
- 2 Two
- 3 Three
- 4 Four

Q19. Do you have a dishwasher in your home? **(SINGLE MENTION)**

- 1 Yes
- 2 No

Q20. Is there a clothes washing machine at your home? **(SINGLE MENTION; FORCE RESPONSE)**

- 1 Yes
- 2 No

ASK Q21 AND Q22 ON SAME PAGE IF Q20=1

Q21. How many clothes washing machines are at your home?

- 1 One
- 2 Two
- 3 Three
- 4 Four

Q22. Is your washing machine top loading or front loading? **(SINGLE MENTION)**

- 1 Top loading
- 2 Front loading

Q23. Do you have a clothes dryer at your home? **(SINGLE MENTION; FORCE RESPONSE)**

- 1 Yes
- 2 No

ASK Q24-Q26 ON SAME PAGE IF Q23=1

Q24. How many clothes dryers are at your home?

- 1 One
- 2 Two
- 3 Three
- 4 Four

Q25. What type of clothes dryer? **(SINGLE MENTION)**

- 1 Electric
- 2 Natural gas

Q26. What is the age of your clothes dryer? **(SINGLE MENTION)**

- 1 0-3 years
- 2 4-6 years
- 3 7-10 years
- 5 Older than 10 years

ASK IF Q20 = 1 OR Q23 = 1

Q27. How many loads of laundry do you average per week? **(ALLOW 0-50)**

RECORD: _____

Q28. Is there an outdoor spa or hot tub at your home? **(SINGLE MENTION)**

- 1 Yes
- 2 No

IF Q28=1

Q29. How is the spa heated? **(SINGLE MENTION)**

- 1 Electric
- 2 Natural gas

Q30. Does your home have a swimming pool? **(SINGLE MENTION)**

- 1 Yes
- 2 No

Q30A. Do you use any pumping devices (sump pump, recirculation pump, well pump)?

- 1 Yes
- 2 No

Q31. How many of the following appliances are used at your home? **(SINGLE MENTION)**

Please select one response for each row.

	None	One	Two	Three	Four	Five or more
Tube type TV (27 inches or less)	0	1	2	3	4	5
Tube type TV (more than 27 inches)	0	1	2	3	4	5
High definition DLP/rear projection TV	0	1	2	3	4	5
High definition plasma (49 inches or less)	0	1	2	3	4	5
High definition plasma (50 inches or more)	0	1	2	3	4	5
High definition LCD (49 inches or less)	0	1	2	3	4	5
High definition LCD (50 inches or more)	0	1	2	3	4	5
High definition LED (49 inches or less)	0	1	2	3	4	5
High definition LED (50 inches or more)	0	1	2	3	4	5
Digital Video Recorder (DVR or TiVo)	0	1	2	3	4	5
Digital Video Disk Player (DVD)	0	1	2	3	4	5
Stereo system	0	1	2	3	4	5
Laptop computer	0	1	2	3	4	5
Tablet computer	0	1	2	3	4	5
Desktop computer	0	1	2	3	4	5
Video game console	0	1	2	3	4	5
Home theater (at least 5 speakers)	0	1	2	3	4	5
Mobile phone or smartphone	0	1	2	3	4	5

Understanding Your Electric Bill

IF WA ASK Q32-Q46; IF WY, ID or CA, SKIP TO Q47

Q32. The next series of questions is about billing for electricity usage. Which of the following statements best describes how you typically review and pay your electric bill?

- 1 You review the detailed items on your bill including how many kilowatt-hours of electricity you have used
- 2 You just look for the amount due and due date and don't look at the detailed items
- 3 Your bill is paid automatically and you never even look at your bill
- 4 You only look at the graph on the bill

Q33. Averaged across all seasons of the year, how much do you spend per month on electricity?

Monthly electricity bill: _____

Q34. Are you aware that electric utilities charge customers based on how many kilowatt-hours of electricity they use each month?

- 1 Yes
- 2 No

Q35. Do you typically keep track of how many kilowatt-hours of electricity your household uses each month?

- 1 Yes
- 2 No → **SKIP TO Q38**

Q36. How do you keep track of your monthly kilowatt-hour usage of electricity: by reviewing your electric bill, by reading your electric meter, or both?

- 1 I review the bill → **SKIP TO Q38**
- 2 I read the meter
- 3 I review the bill and read the meter
- 4 Neither → **SKIP TO Q38**

Q37. On average, how many times a month do you read your electric meter?

- 1 Once
- 2 Two times
- 3 Three times
- 4 Four times or more
- 5 I don't read my electric meter

Q38. On average, how many kilowatt-hours of electricity do you use in a typical month for your home? Please exclude kilowatt-hours of electricity to serve outlying buildings that may also be reflected on your bill.

- 1 Less than 600
- 2 601 to 1000
- 3 More than 1000
- 7 Don't know

Q39. Are you aware that Pacific Power charges residential customers a tiered rate where you pay a higher amount per kilowatt-hour as you use more electricity?

- 1 Yes
- 2 No → **SKIP TO Q42**

Q40. How aware are you of the levels or tiers and the different amounts charged depending on how much electricity you use?

- 4 Very aware
- 3 Somewhat aware
- 2 Not very aware
- 1 Not at all aware

Q41. Which of the following best represents the kilowatt-hour point at which residential customers start to pay a higher rate for their monthly energy usage?

- 1 250 kWh
- 2 600 kWh
- 3 1000 kWh
- 4 2000 kWh
- 7 Don't know

Q42. With Pacific Power's tiered rate, customers pay an increasing amount per kilowatt-hour of electricity used. There are two levels or tiers:

- The first level or tier charges customers about 6 ½ cents per kilowatt-hour for each of the first 600 kilowatt-hours of electricity used per month.
- The second level or tier charges customers about 10 cents per kilowatt-hour over 600 kilowatt-hours of electricity used per month. Customers still pay about 6 ½ cents for each of their first 600 kilowatt-hours.

Before now, were you aware of these levels or tiers and the different amounts charged depending on how much electricity you use?

- 1 Yes
- 2 No

Q43. How easy or difficult do you think a tiered rate structure is to understand? Would you say it's...

- 4 Very easy
- 3 Somewhat easy
- 2 Somewhat difficult
- 1 Very difficult

Q44. Has the tiered rate structure influenced your electricity usage decisions?

- 1 Yes
- 2 Somewhat
- 3 No

- Q45. Using a scale of 'strongly agree', 'somewhat agree', 'somewhat disagree' and 'strongly disagree', how much do you agree with the following statement:

I would rather pay the same rate for each kilowatt-hour than have the tiered rate structure.

- 4 Strongly agree
- 3 Somewhat agree
- 2 Somewhat disagree
- 1 Strongly disagree

- Q46. Using a scale of 'strongly agree', 'somewhat agree', 'somewhat disagree' and 'strongly disagree', how much do you agree with the following statement:

I would rather pay a higher Basic Charge and lower energy tier rates for each kilowatt-hour.

- 4 Strongly agree
- 3 Somewhat agree
- 2 Somewhat disagree
- 1 Strongly disagree

HOUSEHOLD INFORMATION

- Q47. How many people including yourself live at your home? **(ALLOW 1-25; FORCE RESPONSE)**

RECORD: _____

- Q48. What type of building is your home? **(SINGLE MENTION; FORCE RESPONSE)**

- 11 Single family home
- 12 Duplex or triplex or fourplex
- 13 An apartment building
- 14 A townhouse, row house, or condominium with 2 or more units
- 15 Manufactured home
- 99 Other (Specify)

- Q49. Since January 2009 has your home been remodeled to change the amount of energy you use, such as ceiling or attic insulation, double or triple glazed windows, caulk or weather-strip doors or windows? **(SINGLE MENTION)**

- 1 Yes
- 2 No
- 3 Don't know

ASK IF Q49 = 1

- Q50. Did you receive an incentive from **[IF WA OR CA: Pacific Power]/ [IF WY or ID: Rocky Mountain Power]** for your remodeling project?

- 1 Yes
- 2 No
- 3 Don't know

Q51. In what year was your residence built? You best estimate is fine.

RECORD (RANGE = 1850-2013)

99 Don't know

Q51A. Do you generate solar or wind power at your residence?

1 Yes

2 No

WA-ONLY HOUSEHOLD INFORMATION

IF WA ASK Q52-Q55 and Q57; IF WY, CA or ID, SKIP TO Q56

Q52. Do you own or rent your home?

1 Own

2 Rent

Q53. Are you aware that Pacific Power has programs to help you buy more energy efficient appliances and equipment for your home?

1 Yes

2 No

Q54. Including you, how many people in each of the following age ranges usually live in your home?

	<i>Fill in how many people in each of the age ranges live in your home</i>
< 4 years old	
5 to 12 years old	
13 to 18 years old	
19 to 24 years old	
25 to 34 years old	
35 to 44 years old	
45 to 54 years old	
55 to 64 years old	
65 + years old	

Q55. Which of the following best represents your age?

1 18 to 25

2 26 to 35

3 36 to 45

4 46 to 55

5 56 to 65

6 Over 65

Q56. Which of the following best describes your total annual household income before taxes and deductions?

- 11 Under \$10,000
- 12 \$10,000 to \$19,999
- 13 \$20,000 to \$29,999
- 14 \$30,000 to \$39,999
- 15 \$40,000 to \$49,999
- 16 \$50,000 to \$59,999
- 17 \$60,000 to \$69,999
- 18 \$70,000 to \$79,999
- 19 \$80,000 to \$89,999
- 20 \$90,000 to \$100,000
- 21 \$100,001 or more
- 98 Prefer not to answer

IF WY OR CA OR ID, SKIP TO END

Q57. Have you received energy financial assistance from any state agency or non-profit organization?

- 1 Yes
- 2 No

Exit

Thank you very much for your cooperation and assistance!

IF WA or CA, DIRECT RESPONDENTS TO WWW.PACIFICPOWER.NET

IF WY or ID, DIRECT RESPONDENTS TO WWW.ROCKYMOUNTAINPOWER.NET

ATTACHMENT B



Washington Residential Energy Bill Usage and Understanding Research

Pacific Power

Prepared by

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Research Objectives & Methodology

Objectives

- This research will help PacifiCorp understand the degree to which customers monitor their electrical consumption, and evaluate awareness and understanding of the tiered rate structure in Washington.

Methodology

- A total of three-thousand seven-hundred and eighty-seven (n=3,787) residential customers were surveyed between May 15, 2014 and June 9, 2014, via a combination of paper mail surveys and online surveys.
 - A list of 4,000 Washington residential customers was provided by PacifiCorp for mailing of paper surveys.
 - A list of 33,806 Washington residential customers was issued an email inviting them to participate in the online survey.
 - Customers receiving the mailed paper survey were also given the opportunity to participate online, if preferred.
- All respondents were screened to be the person in the household most likely to review and pay their Pacific Power electric bill.
- The maximum sampling variability for a sample of n=3,787 at the 95% confidence level is $\pm 1.6\%$.
- This study was conducted by MDC Research.



Key Findings

Reviewing and Paying Electric Bills

- More than half review the detailed items on their bills.
- The average household electric bill is reported to be \$124 per month.
- Nearly three in ten customers track their kWh energy use; of those who do, reviewing the bill is the most common method.
- When asked how many kWh are used on a monthly basis, more than half “don’t know.”

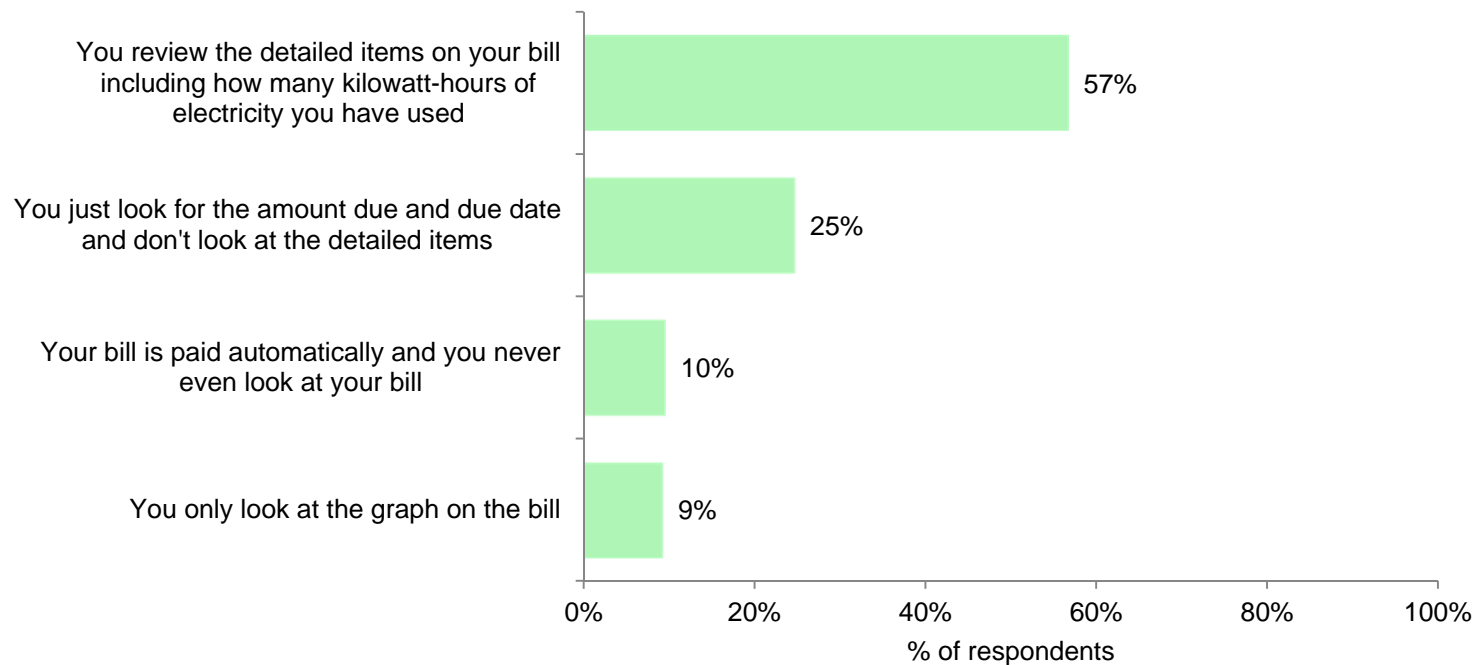
Tiered Rate Structure Awareness

- Half are aware of the tiered rate structure. Of those aware, over two in five consider themselves “somewhat aware.”
- Just over half believe that 600 kilowatt-hours is the point at which the rate increases. An additional 44% say they “don’t know.”
- One in three are aware there are two tiers in WA. Over three in four find the tiered rate structure easy to understand.
- When asked to rate agreement with different rate structures, over half “strongly” or “somewhat” agree with a flat rate, which one third agree with a structure that involves a higher basic charge and lower energy tier rates for each kWh.

Reviewing and Paying Electric Bills

- More than half of respondents state that they review the detailed items on their bills.

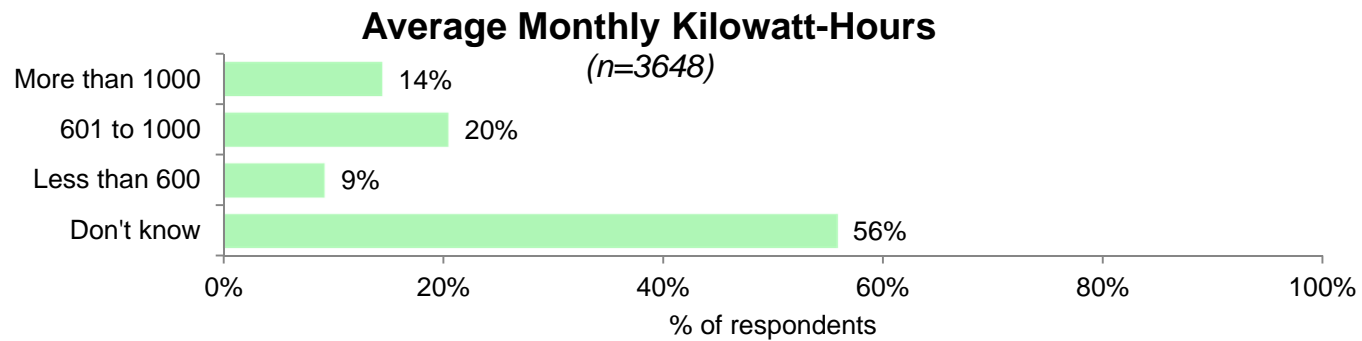
Method of Reviewing and Paying Electric Bill
(n=3754)



Q32 Which of the following statements best describes how you typically review and pay your electric bill?

Average Spending and Usage

- Just over half don't know how many kilowatt-hours they use each month.



Average Monthly Spending:
(n=3,542)

\$124*

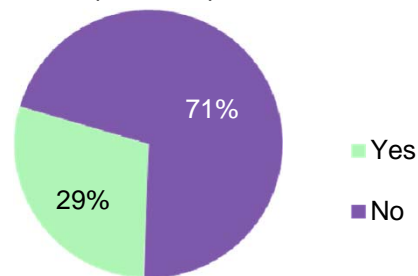
* Excludes outliers, \$1000+ and less than \$10

Q33 Averaged across all seasons of the year, how much do you spend per month on electricity?
Q38 On average, how many kilowatt-hours of electricity do you use in a typical month for your home?

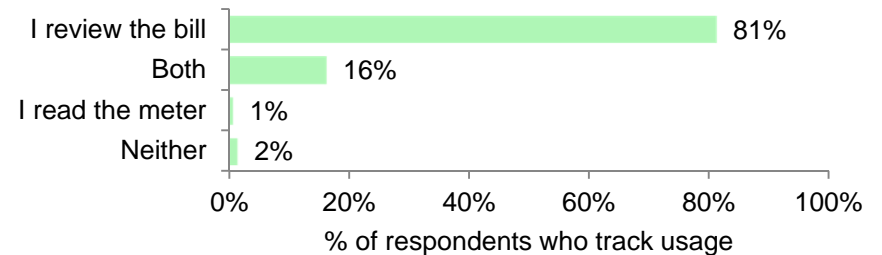
Kilowatt-hours Usage Awareness

- Nearly three in ten track energy usage.
- Reviewing the bill is the most common way to track energy usage.

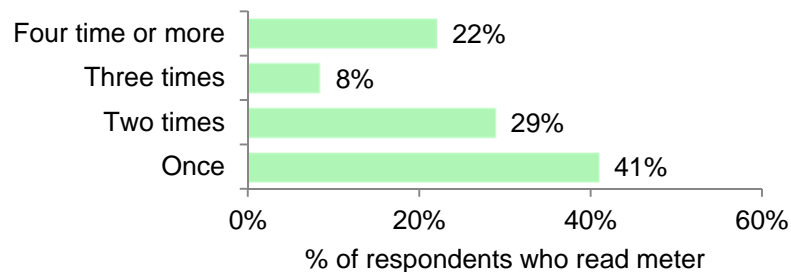
Keeps Track of Usage
(n=3732)



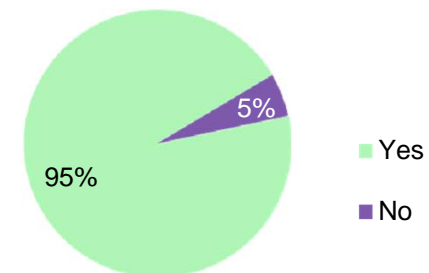
Method of Tracking Usage
(n=1108)



Average Meter Reading
(n=191)



Aware of Per-kW Hour Charge
(n=3742)

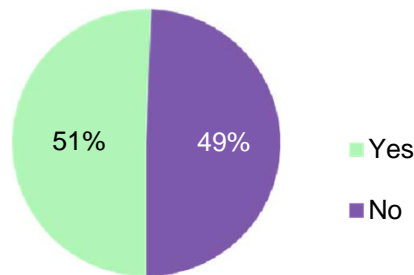


- Q34 Are you aware that electric utilities charge customers based on how many kilowatt-hours of electricity they use each month?
 Q35 Do you typically keep track of how many kilowatt-hours of electricity your household uses each month?
 Q36 How do you keep track of your monthly kilowatt-hour usage of electricity: by reviewing your electric bill, by reading your electric meter, or both?
 Q37 On average, how many times a month do you read your electric meter?

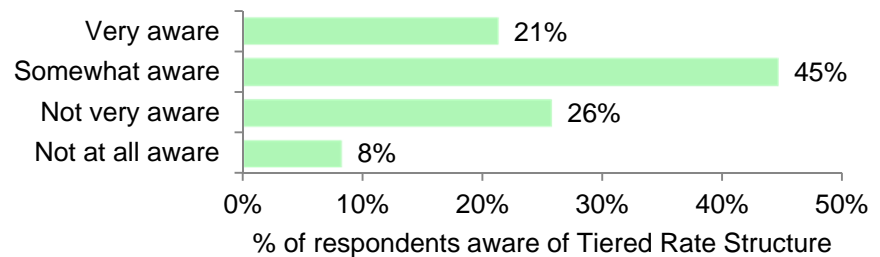
Tiered Rate Structure Awareness

- Half of respondents are aware of the tiered rate structure.
- Of those aware, nearly half consider themselves “somewhat aware.”

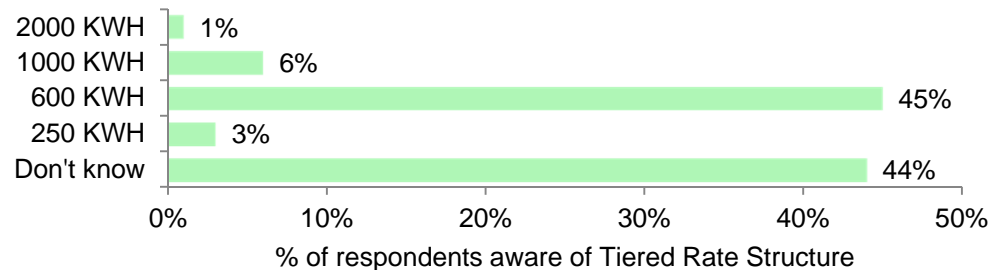
Aware of Tiered Rate Structure
(n=3729)



Awareness of Tiers/Amounts Charged
(n=1867)



kW-Hour Point of Rate Increase
(n=1823)

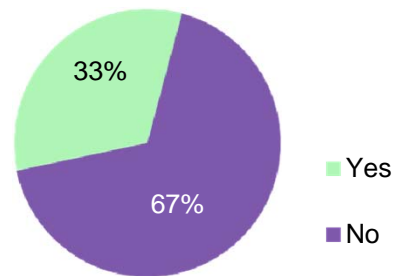


- Q39 Are you aware that Pacific Power charges residential customers a tiered rate where you pay a higher amount per kilowatt-hour as you use more electricity?
 Q40 How aware are you of the levels or tiers and the different amounts charged depending on how much electricity you use?
 Q41 Which of the following best represents the kilowatt-hour point at which residential customers start to pay a higher rate for their monthly energy usage?

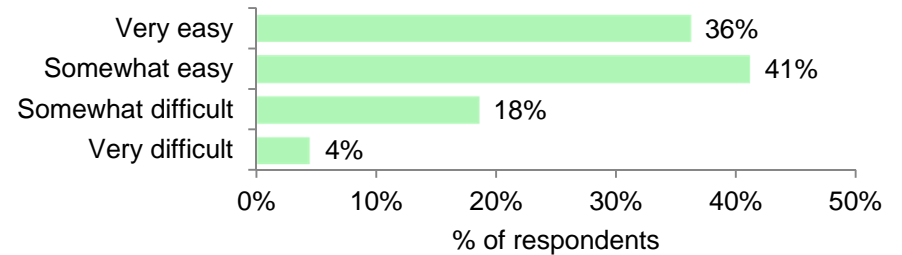
Tiered Rate Structure Opinion

- Two thirds of respondents were previously unaware of the tiered rate structure, and 56% state that it does not influence their usage decisions.
- Three quarters consider a tiered rate easy to understand.

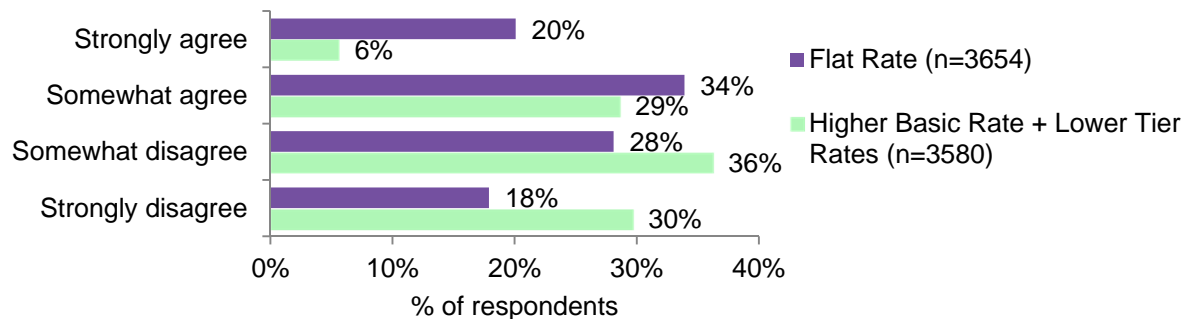
Previous Awareness
(n=3735)



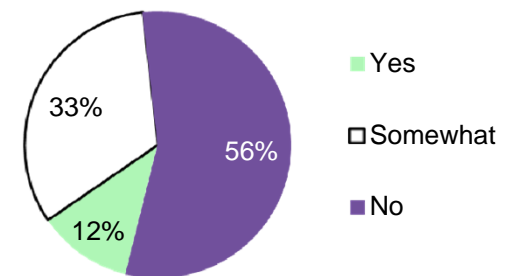
Easy to Understand
(n=3732)



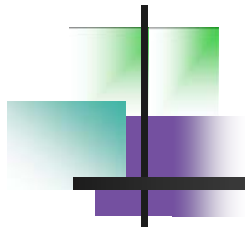
Agreement with Alternative Rate Structures



Influenced Usage Decisions
(n=3715)



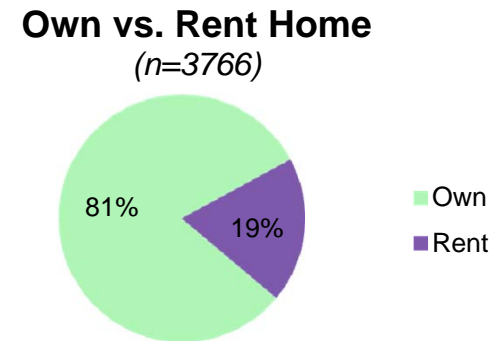
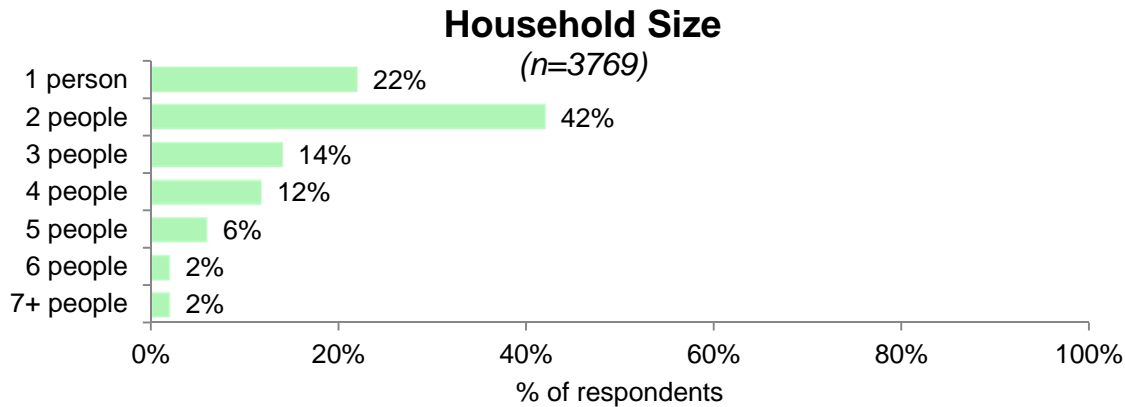
- Q42 With Pacific Power's tiered rate, customers pay an increasing amount per kilowatt-hour of electricity used. There are two levels or tiers: before now, were you aware of these levels or tiers and the different amounts charged depending on how much electricity you use?
- Q43 How easy or difficult do you think a tiered rate structure is to understand? Would you say it's...
- Q44 Has the tiered rate structure influenced your electricity usage decisions?
- Q45 Using a scale of 'strongly agree', 'somewhat agree', 'somewhat disagree' and 'strongly disagree', how much do you agree with the following statement: I would rather pay the same rate for each kilowatt-hour than have the tiered rate structure.
- Q46 Using a scale of 'strongly agree', 'somewhat agree', 'somewhat disagree' and 'strongly disagree', how much do you agree with the following statement: I would rather pay a higher Basic Charge and lower energy tier rates for each kilowatt-hour.



Household Information

Washington Customers

Household Statistics



	Age Ranges in Home								
	< 4 years old (n=654)	5-12 years old (n=831)	13-18 years old (n=717)	19-24 years old (n=655)	25-34 years old (n=927)	35-44 years old (n=930)	45-54 years old (n=1105)	55-64 years old (n=1375)	65+ years old (n=1391)
None	39%	29%	33%	37%	23%	24%	18%	13%	12%
1 person	44%	42%	45%	46%	43%	46%	51%	53%	47%
2 people	15%	22%	19%	14%	32%	30%	30%	34%	40%
3 people	2%	6%	2%	3%	2%	1%	<1%	<1%	1%
4 people	<1%	1%	1%	-	<1%	<1%	-	-	<1%
5 people	-	<1%	-	<1%	<1%	-	-	-	-
6 people	<1%	<1%	-	<1%	-	-	-	-	-
7+ people	<1%	<1%	<1%	<1%	-	-	-	-	-

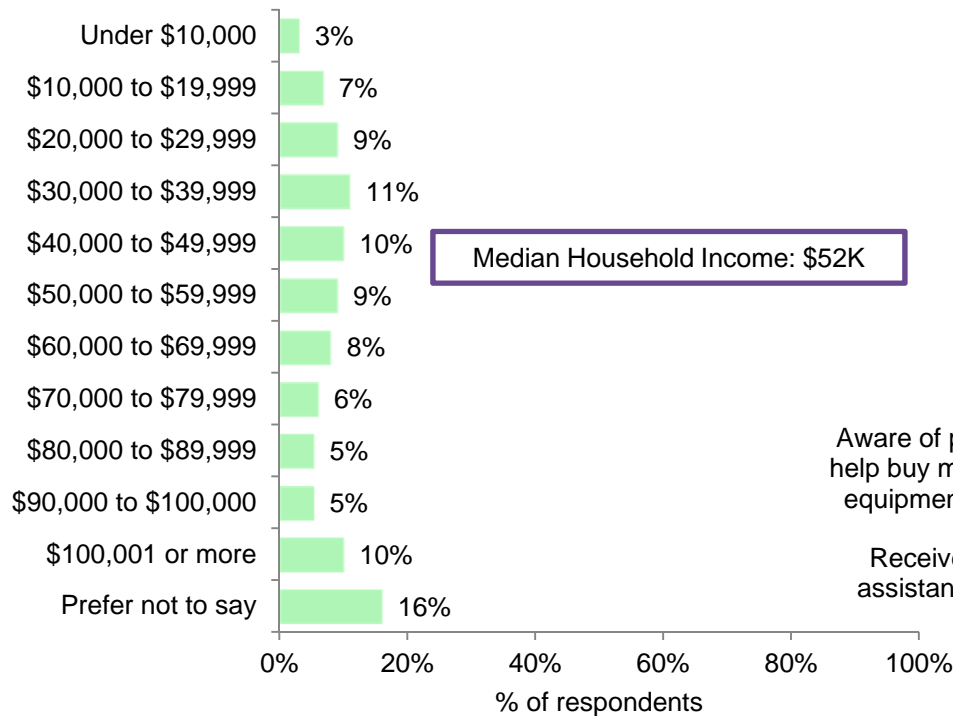
Q47 How many people including yourself live at your home?

Q52 Do you own or rent your home?

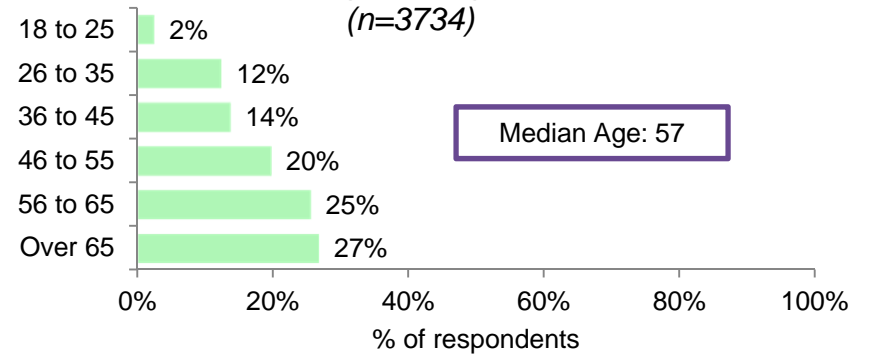
Q54 Including you, how many people in the each of the following age ranges usually live in your home?

Personal Statistics

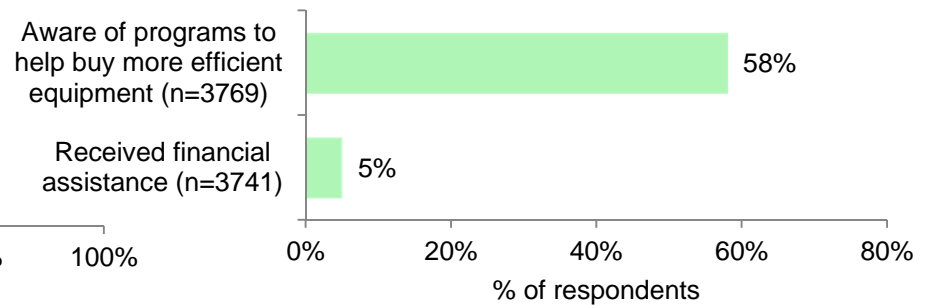
Income Range
(n=3710)



Age Range
(n=3734)



Pacific Power Programs



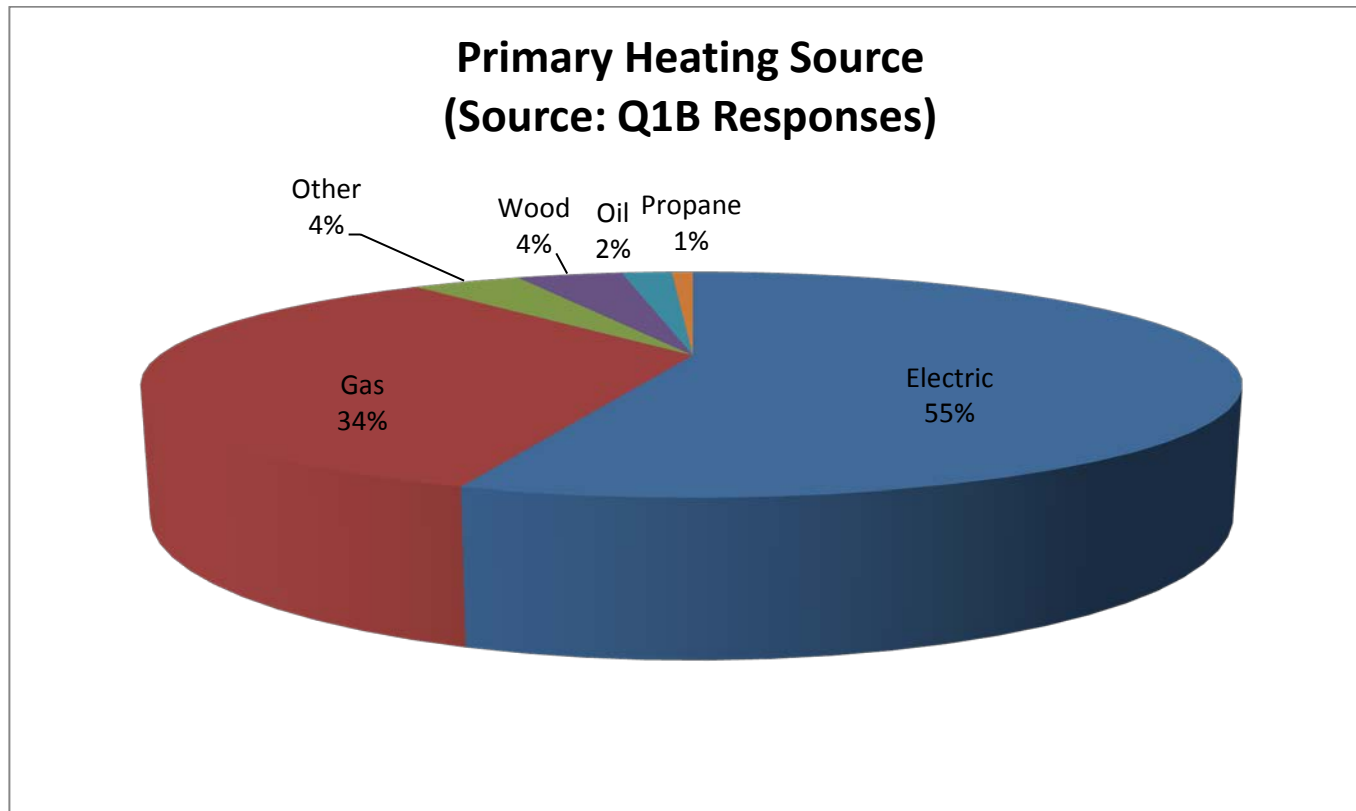
- Q53 Are you aware that Pacific Power has programs to help you buy more energy efficient appliances and equipment for your home?
- Q55 Which of the following best represents your age?
- Q56 Which of the following best describes your total annual household income before taxes and deductions?
- Q57 Have you received energy financial assistance from any state agency or non-profit organization?

ATTACHMENT C

Washington Residential Consumption Survey Key Findings – Residential End Uses

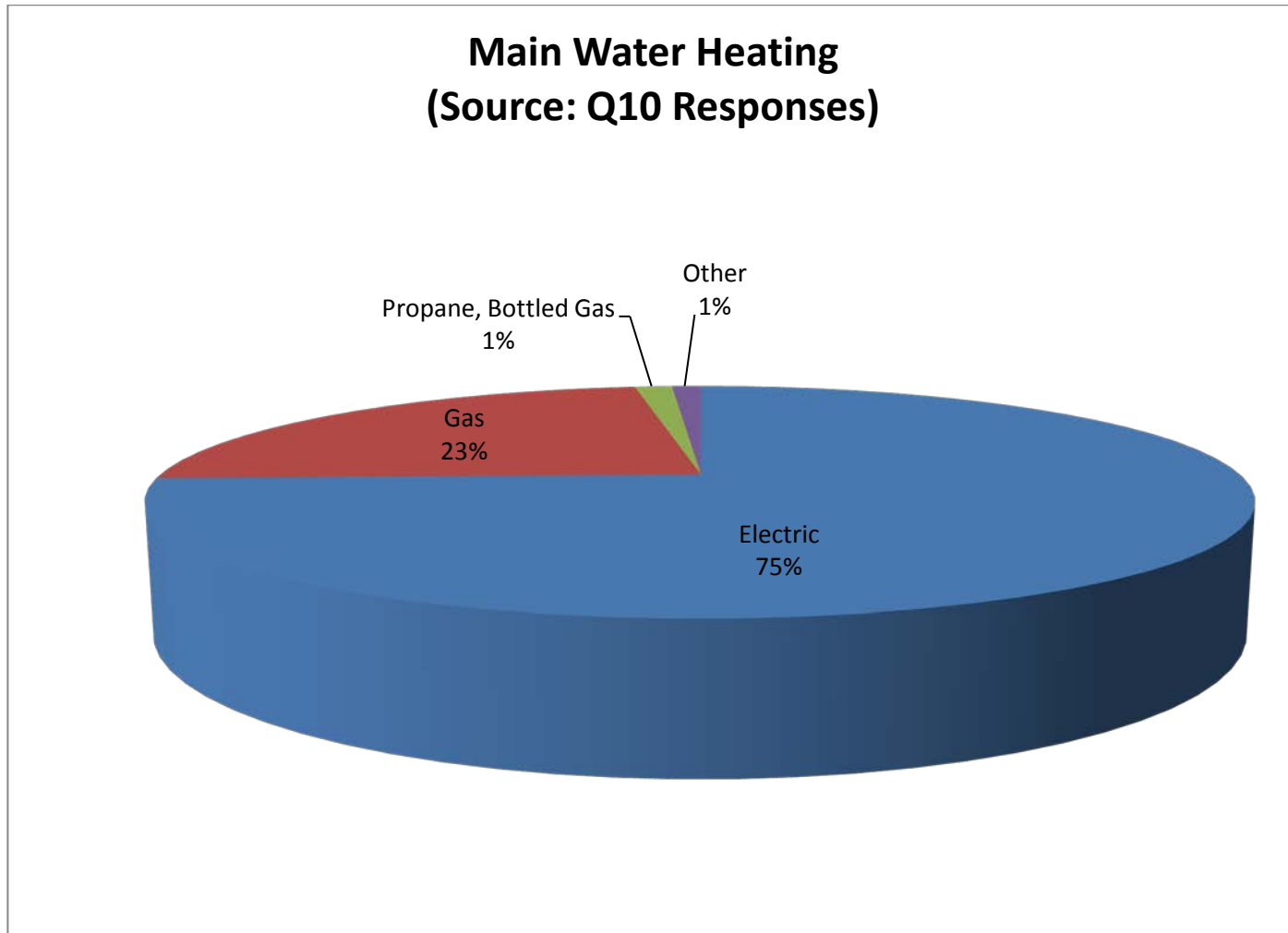
Home Heating Energy Source

- A little more than half of residential customers use electricity as their main heating source.



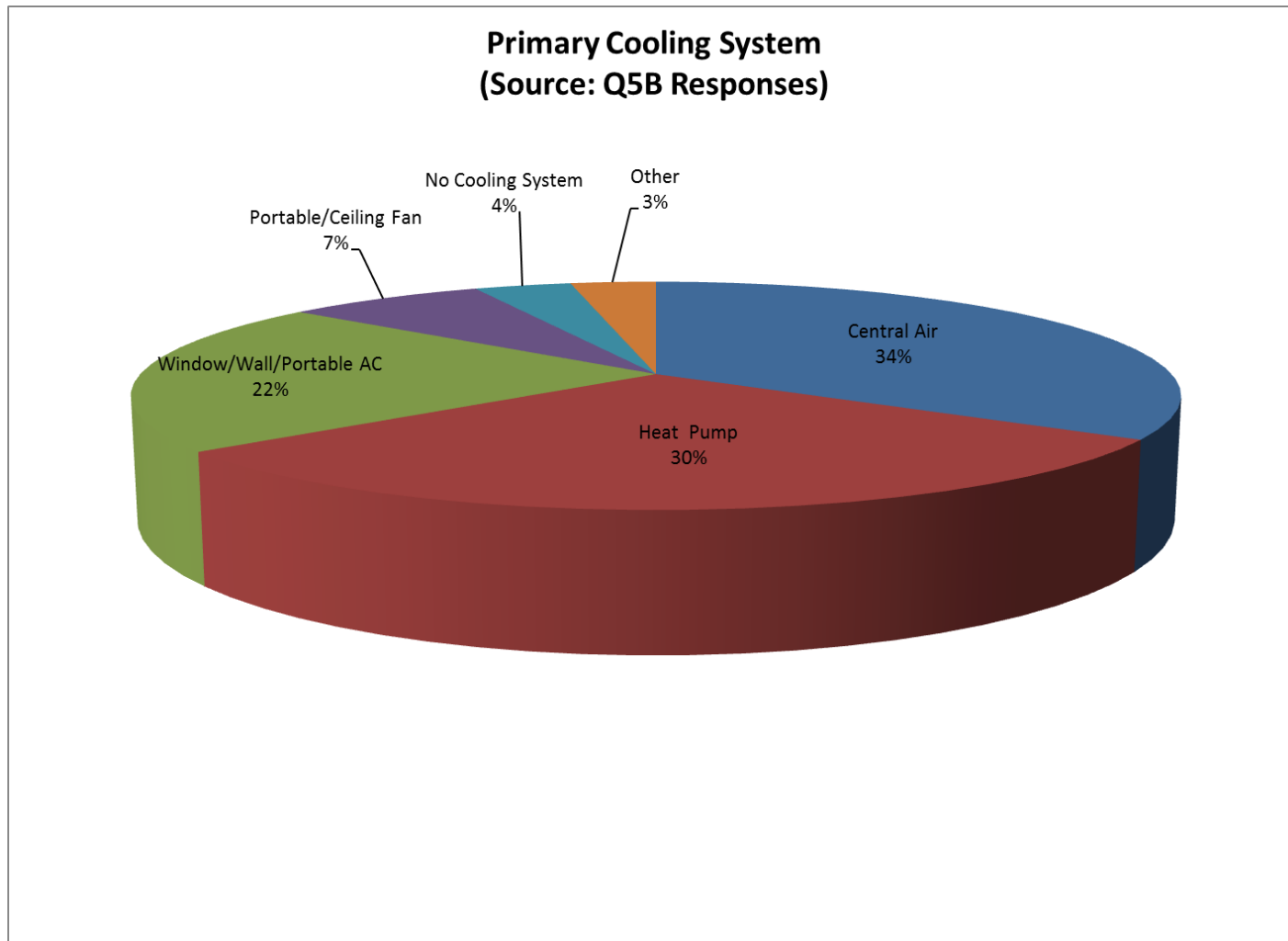
Main Water Heating Source

- Three quarters of residential customers use electricity as their main heating source for water.



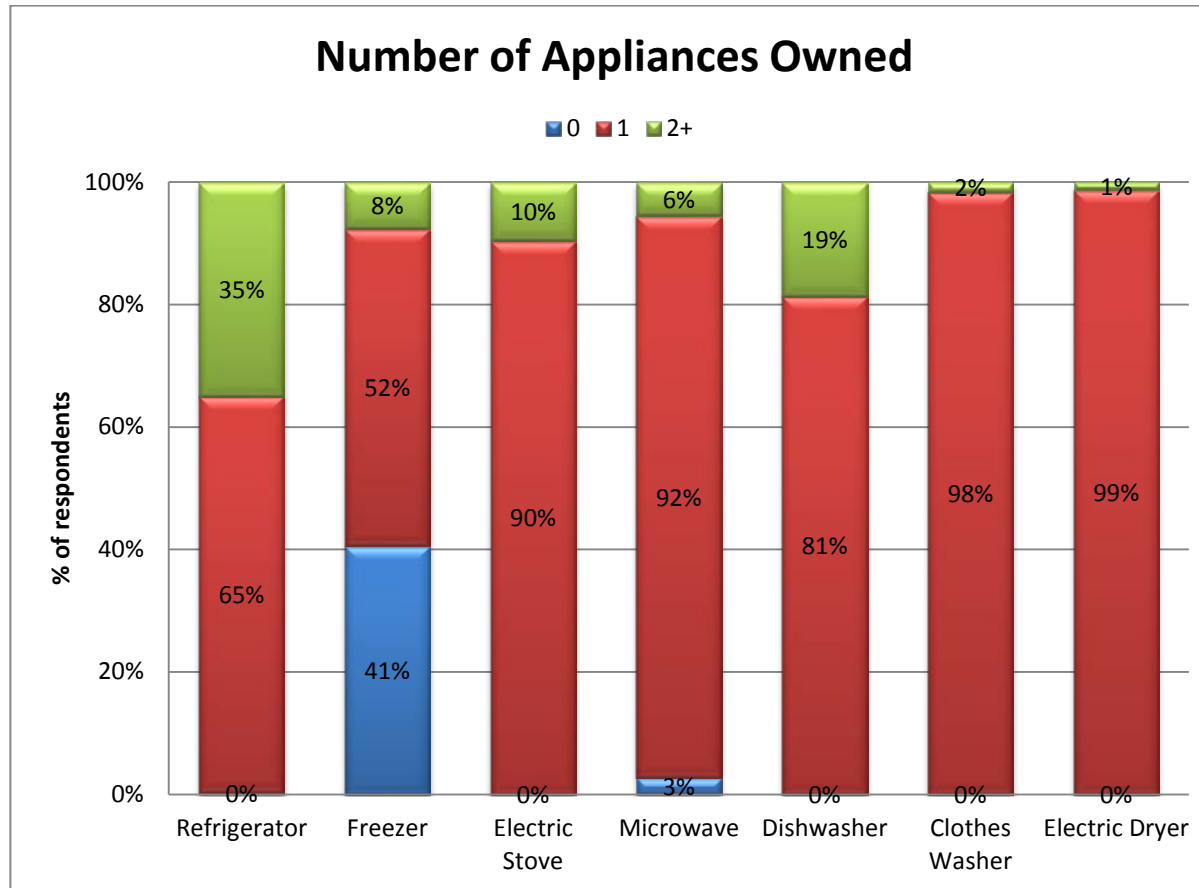
Home Cooling Sources

- The majority of residential customers have air conditioning in their home, with two-thirds of customers have either electric central air or a heat pump.



Appliances Owned

- One-third of residential customers have more than one refrigerator and one-half have a stand-alone freezer. The majority of customers have electric stoves and electric dryers.



SURVEY RESULTS - WASHINGTON (NON-RESPONSES REMOVED FROM SAMPLE)

Sample Size: **3,785**

Q1. Which of the following types of heating systems are used at your home?

Sample Size: **3,774** **3,613**

	All	Primary	Primary						
				Schedule 16	Schedule 17	Other	Schedule 16	Schedule 17	Other
Natural gas heating									
Gas central furnace									
Gas hot water or steam									
Gas boiler									
Gas fireplace									
Gas fireplace insert									
Other gas system									
Electric heating									
Baseboard/wall heaters									
Wall heaters with fan									
Central furnace									
Heat pump, gas backup									
Heat pump, electric backup									
Heat pump, other backup									
Ductless heat pump									
Radiant surface heating									
Portable heaters									
Electric fireplace									
Electric fireplace insert									
Other electric system									
Oil heating									
Oil central furnace									
Oil hot water or steam									
Propane/butane/kerosene heating									
Bottled gas central									
Bottled gas portable heaters									
Other fuels									
Wood stove									
Wood fireplace									
Fireplace insert, wood									
Fireplace insert, pellets									
Solar with electric backup									
Solar with gas backup									
Biomass									
Other system									
No heating system									

Q2. What is the age of your primary heating system?

Sample Size: **3,748**

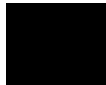
- 0-5 years
- 6-10 years
- 11-15 years
- 16-20 years
- Older than 20 years



Q3. Did you replace an electric heating system with natural gas?

Sample Size: **1,312**

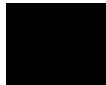
- Yes
- No



Q4. Do you use a programmable thermostat for heating?

Sample Size: **3,743**

- Yes
- No



Q5. Which of the following types of cooling systems are used at your home?

Sample Size: 3,772 3,707

	All	Primary	Schedule 16	Schedule 17	Other	Schedule 16	Schedule 17	Other
Ductless heat pump								
Window/wall air conditioner								
Portable air conditioner								
Heat pump								
Central electric air conditioner								
Evaporative or swamp cooler								
Ground source heat pump								
Electric portable/ceiling fan								
Other cooling system								
No cooling system								

Q6. How many window/wall air conditioners are in your home?

Sample Size: 967

0	
1	
2	
3	
4	
5	

Q7. What is the age of your primary cooling system?

Sample Size: 3,597

0-5 years	
6-10 years	
11-15 years	
16-20 years	
Older than 20 years	

Q8. Do you use a programmable thermostat for cooling?

Sample Size: 3,327

Yes	
No	

Q9. What is the square footage of your living space?

Schedule 16 Schedule 17

Average square footage	
------------------------	--

Q10. What type of energy is used to heat all/most of your water?

Sample Size: 3,765

	Schedule 16	Schedule 17	Other	Schedule 16	Schedule 17	Other
Electricity						
Natural gas						
Propane, kerosene or butane						
Solar with gas backup						
Solar with electric backup						
Oil						
Other						

Q11. Please type in the number of each type of light bulb you use for inside and outside your home.

	Inside	Outside	Total
Incandescent bulbs			
Compact fluorescent bulbs			
Flourescent tubes			
Halogen tubes			
Halogen bulbs			
LED bulbs			

	Inside	Outside	Total
Incandescent bulbs			
Compact fluorescent bulbs			
Flourescent tubes			
Halogen tubes			
Halogen bulbs			
LED bulbs			

Q12. How many refrigerators are plugged in and operating at your home?

0	
1	
2	
3	
4	

Q13A. What is the age of your newest refrigerator?

Sample Size: 3,749

0-3 years	
4-6 years	
7-10 years	
Older than 10 years	

Q13B. What is the age of your 2nd newest refrigerator?

Sample Size: 1,315

0-3 years	
4-6 years	
7-10 years	
Older than 10 years	

Q13C. What is the age of your 3rd newest refrigerator?

Sample Size: 159

0-3 years	
4-6 years	
7-10 years	
Older than 10 years	


Q13D. What is the age of your 4th newest refrigerator?

Sample Size: 14

0-3 years	
4-6 years	
7-10 years	
Older than 10 years	

Q14. How many freezers are plugged in and operating at your home?

0
1
2
3
4



Q15A. What is the age of your newest freezer?

Sample Size: 2,242

- 0-3 years
- 4-6 years
- 7-10 years
- Older than 10 years



Q15B. What is the age of your 2nd newest freezer?

Sample Size: 287


- 0-3 years
- 4-6 years
- 7-10 years
- Older than 10 years



Q15C. What is the age of your 3rd newest freezer?

Sample Size: 42

- 0-3 years
- 4-6 years
- 7-10 years
- Older than 10 years



Q15D. What is the age of your 4th newest freezer?

Sample Size: 9

- 0-3 years
- 4-6 years
- 7-10 years
- Older than 10 years



Q16. Please describe your stove top (range) and oven fuel.


Sample Size: 3,727

- Electric
- Natural gas
- Electric and natural gas




Q17. How many ovens do you have in your home?

0
1
2
3
4



Q18. How many microwave ovens do you have in your home?

0
1
2
3
4



Q19. Do you have a dishwasher in your home?		Sample Size: 3,758
Yes		
No		
Q20. Is there a clothes washing machine at your home?		Sample Size: 3,772
Yes		
No		
Q21. How many clothes washing machines are at your home?		Sample Size: 3,576
	1	
	2	
	3	
	4	
Q22. Is your washing machine top loading or front loading?		Sample Size: 3,563
Top loading		
Front loading		
Q23. Do you have a clothes dryer at your home?		Sample Size: 3,774
Yes		
No		
Q24. How many clothes dryers are at your home?		Sample Size: 3,556
	1	
	2	
	3	
	4	
Q25. What type of clothes dryer?		Sample Size: 3,525
Electric		
Natural gas		
Q26. What is the age of your clothes dryer?		Sample Size: 3,528
0-3 years		
4-6 years		
7-10 years		
Older than 10 years		
Q27. How many loads of laundry do you average per week?		
Average number of laundry loads		

Q28. Is there an outdoor spa or hot tub at your home?

Sample Size: 3,763

Yes
No



Q29. How is the spa heated?

Sample Size: 343

Electric
Natural gas



Q30. Does your home have a swimming pool?

Sample Size: 3,713

Yes
No



Q30A. Do you use any pumping devices (sump, recirculation, well pump)?

Sample Size: 3,679

Yes
No

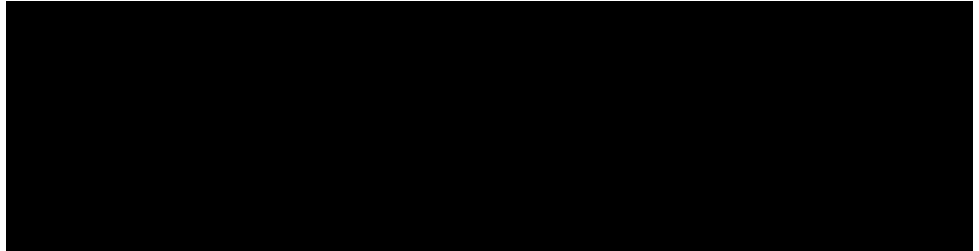


Q31. How many of the following appliances are used at your home?

Televisions:

- Tube type (27" or less)
- Tube type (more than 27")
- HD DLP/rear projection
- HD plasma (49" or less)
- HD plasma (50" or more)
- HD LCD (49" or less)
- HD LCD (50" or more)
- HD LED (49" or less)
- HD LED (50" or more)

None One Two Three Four Five+ Total Sat

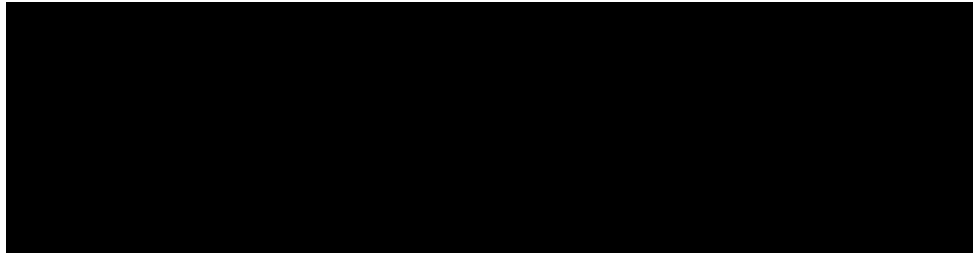


0.0%

Other electronics:

- DVR
- DVD
- Stereo system
- Laptop computer
- Tablet computer
- Desktop computer
- Video game console
- Home theater
- Mobile or smartphone

None One Two Three Four Five+ Total Sat



- DVR + DVD total saturation
- Laptop + desktop PC total saturation
- Home audio total saturation
- Handheld device total saturation



Q32. Which best describes how you typically review and pay your electric bill?

Sample Size: 3,752

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

- 1) You review the detailed items...
- 2) You just look for the amount due...
- 3) Your bill is paid automatically...
- 4) You only look at the graph...



Q33. How much do you spend per month on electricity?

[Schedule 16](#) [Schedule 17](#)

Average answer



Q34. Are you aware that electric utilities charge customers based on kWh?

Sample Size: 3,740

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

- Yes
- No

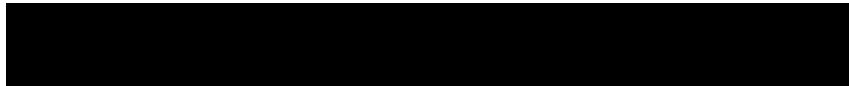


Q35. Do you typically keep track of how many kWh your household uses?

Sample Size: 3,730

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

- Yes
- No



Q36. How do you keep track of your monthly kilowatt-hour usage of electricity?

Sample Size: 1,069

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

- 1) I review the bill
- 2) I read the meter
- 3) I review the bill and read the meter
- 4) Neither

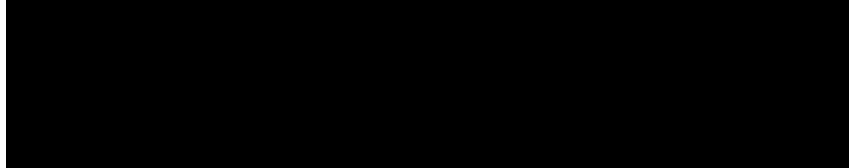


Q37. On average, how many times a month do you read your electric meter?

Sample Size: 184

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

- Once
- Two times
- Three times
- Four times or more
- I don't read my electric meter

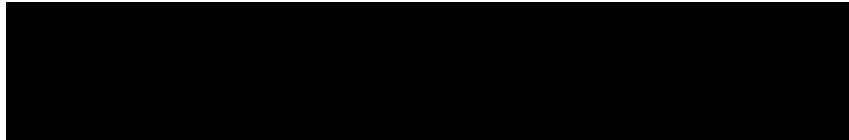


Q38. How many kWh of electricity do you use in a typical month for your home?

Sample Size: 3,646

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

- 1) Less than 600
- 2) 601 to 1000
- 3) More than 1000
- 7) Don't know



Q39. Are you aware that Pacific Power charges residential customers a tiered rate?

Sample Size: 3,727

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

- Yes
- No

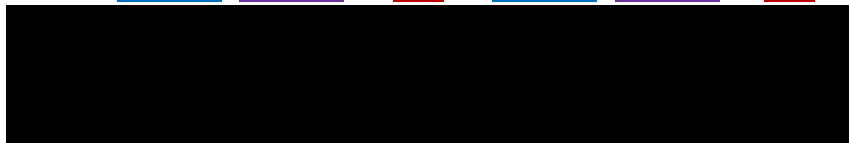


Q40. How are you of the levels or tiers and the different amounts charged?

Sample Size: 1,862

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

- 4) Very aware
- 3) Somewhat aware
- 2) Not very aware
- 1) Not at all aware



Q41. Which of the following best represents the kilowatt-hour point...

Sample Size: 1,820

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

- 250 kWh
- 600 kWh
- 1000 kWh
- 2000 kWh
- Don't know



Q42. Were you aware of these levels or tiers and the different amounts charged?

Sample Size: 3,733

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

- Yes
- No



Q43. How easy or difficult do you think a tiered rate structure is to understand?

Sample Size: 3,730

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

- 4) Very easy
- 3) Somewhat easy
- 2) Somewhat difficult
- 1) Very difficult

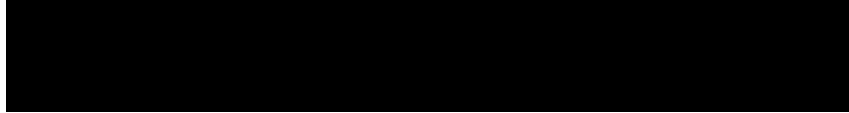


Q44. Has the tiered rate structure influenced your electricity usage decisions?

Sample Size: 3,713

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

- Yes
- Somewhat
- No

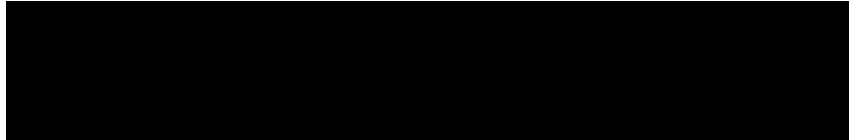


Q45. I would rather pay the same rate for each kWh than have the tiered rates.

Sample Size: 3,652

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

- 4) Strongly agree
- 3) Somewhat agree
- 2) Somewhat disagree
- 1) Strongly disagree

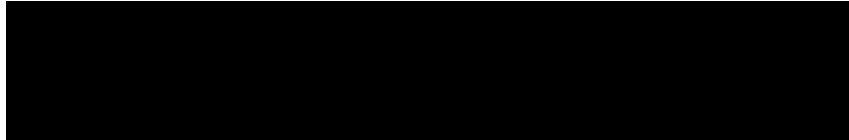


Q46. Rather pay a higher Basic Charge and lower energy tier rates for each kWh.

Sample Size: 3,578

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

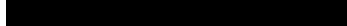
- 4) Strongly agree
- 3) Somewhat agree
- 2) Somewhat disagree
- 1) Strongly disagree



Q47. How many people including yourself live at your home?

[Schedule 16](#) [Schedule 17](#)

Average number of residents

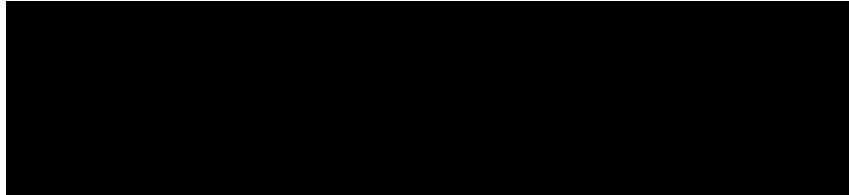


Q48. What type of building is your home?

Sample Size: 3,776

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

- Single family home
- Duplex, triplex, fourplex
- Apartment building
- Townhouse, row house, condo
- Manufactured home
- Other



Q49. Has your home been remodeled to change the amount of energy you use?

Sample Size: 3,749

- Yes
- No
- Don't know



Q50. Did you receive an incentive from PP/RMP for your remodeling project?

Sample Size: 1,066

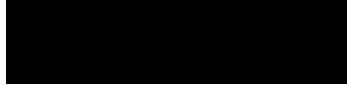
- Yes
- No
- Don't know



Q51. In what year was your residence built?

[Schedule 16](#) [Schedule 17](#)

- Average year
- Average home age

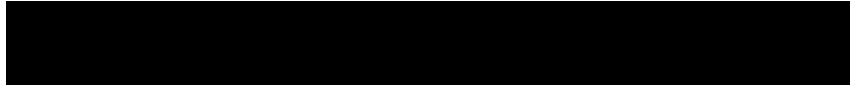


Q51A. Do you generate solar or wind power at your residence?

Sample Size: 3,757

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

- Yes
- No

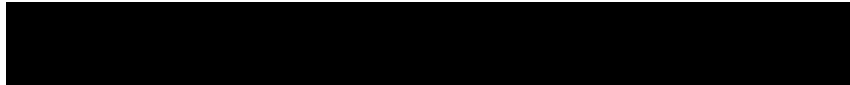


Q52. Do you own or rent your home?

Sample Size: 3,764

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

- Own
- Rent



Q53. Are you aware that PP has programs to help you buy efficient appliances?

Sample Size: 3,767

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

- Yes
- No

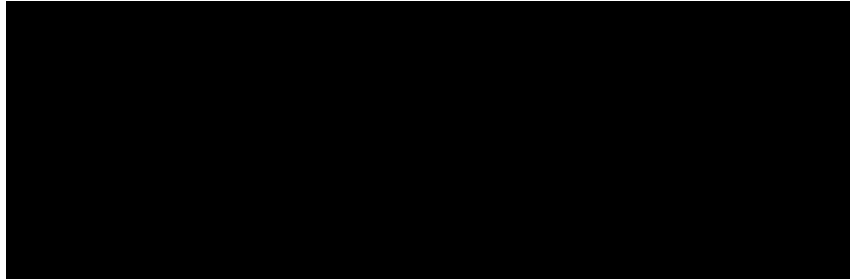


Q54. Including you, how many people in each of the following age ranges usually live in your home?

Sample Size: 9,435

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

- < 4 years old
- 5 to 12 years old
- 13 to 18 years old
- 19 to 24 years old
- 25 to 34 years old
- 35 to 44 years old
- 45 to 54 years old
- 55 to 64 years old
- 65+ years old

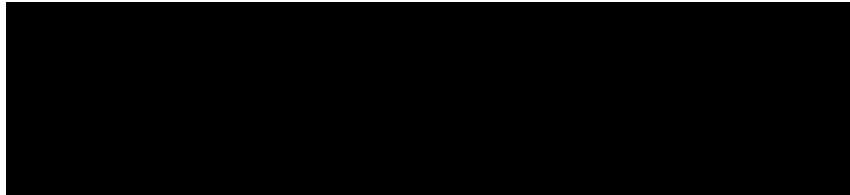


Q55. Which of the following best represents your age?

Sample Size: 3,678

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

- 18 to 25
- 26 to 35
- 36 to 45
- 46 to 55
- 56 to 65
- Over 65

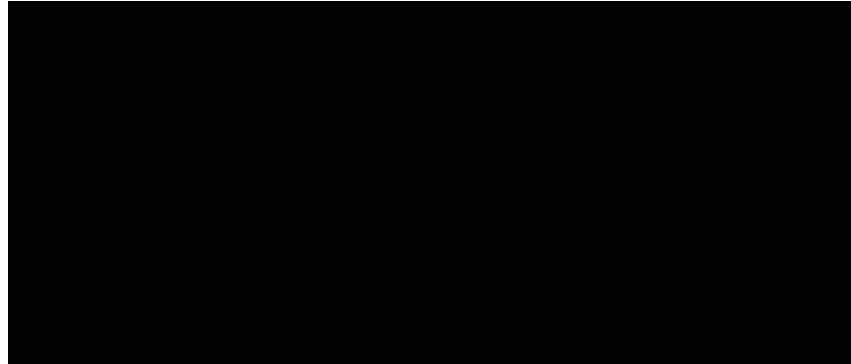


Q56. Which of the following best describes your total annual household income?

Sample Size: 3,708

[Schedule 16](#) [Schedule 17](#) [Other](#) [Schedule 16](#) [Schedule 17](#) [Other](#)

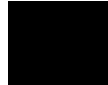
- Under \$10,000
- \$10,000 to \$19,999
- \$20,000 to \$29,999
- \$30,000 to \$39,999
- \$40,000 to \$49,999
- \$50,000 to \$59,999
- \$60,000 to \$69,999
- \$70,000 to \$79,999
- \$80,000 to \$89,999
- \$90,000 to \$100,000
- \$100,001 or more
- Prefer not to answer



Q57. Have you received energy financial assistance?

Sample Size: 3,739

- Yes
- No

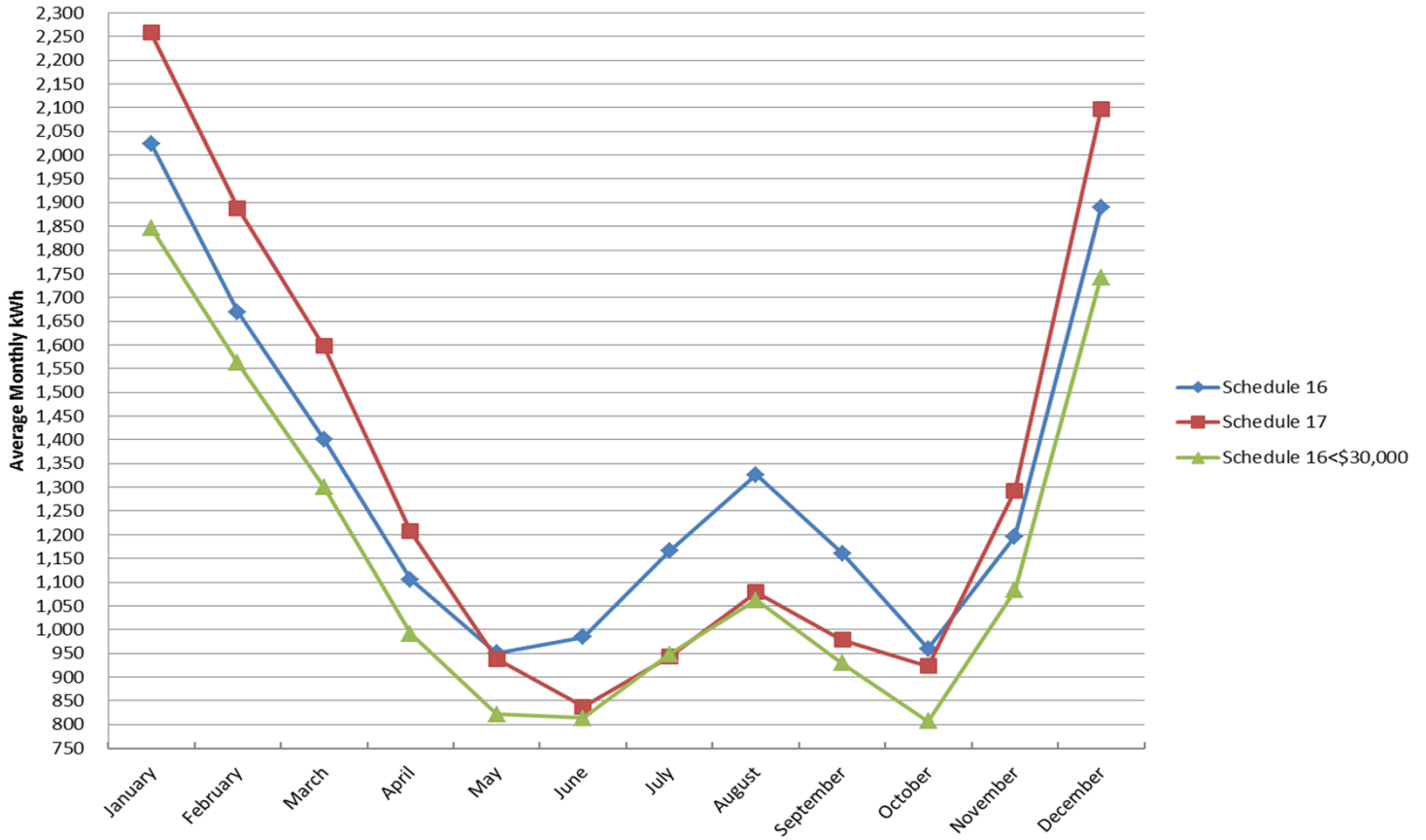


ATTACHMENT D

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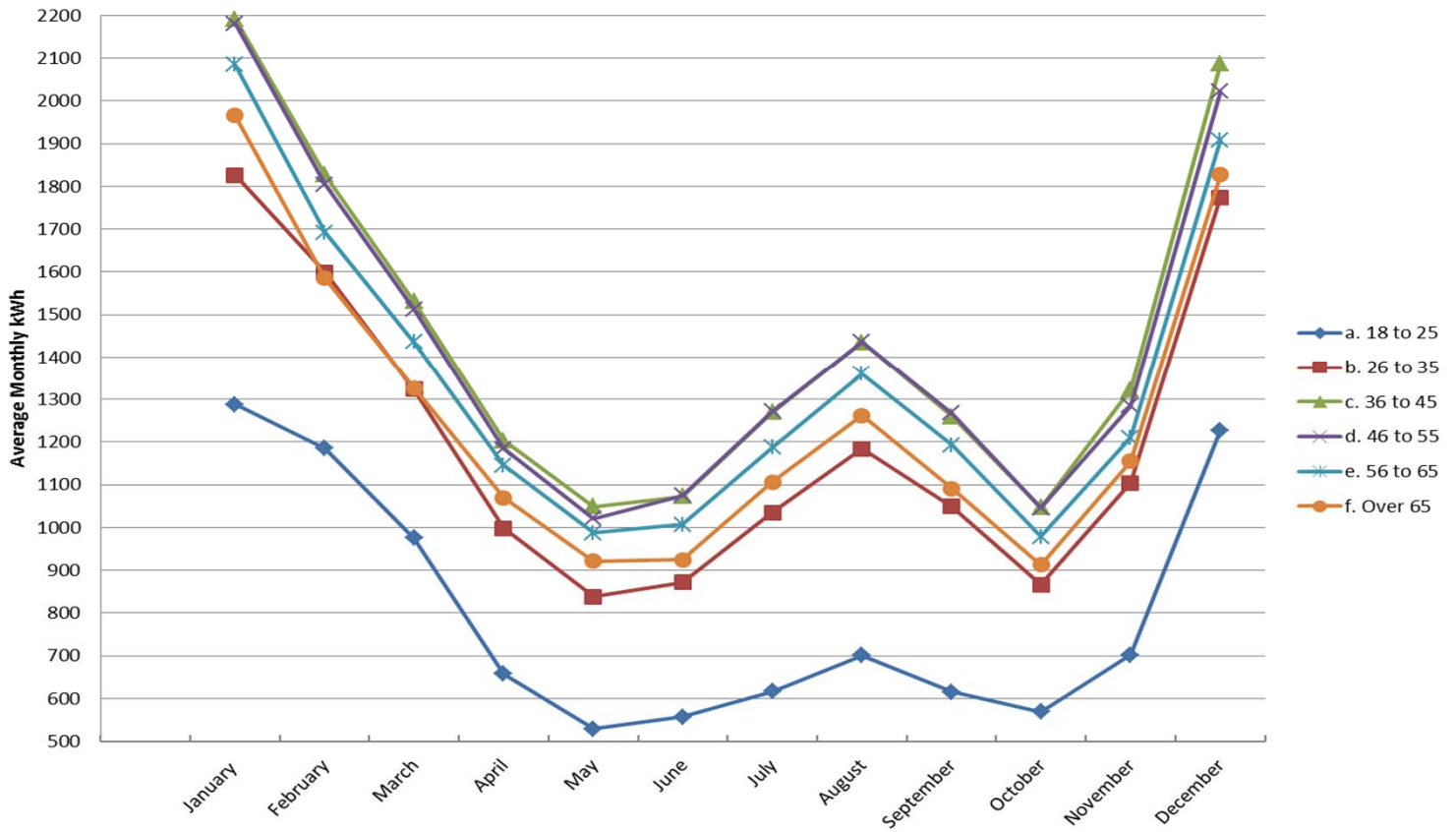
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Average Monthly Usage by Rate Schedule (Source : Actual Usage)



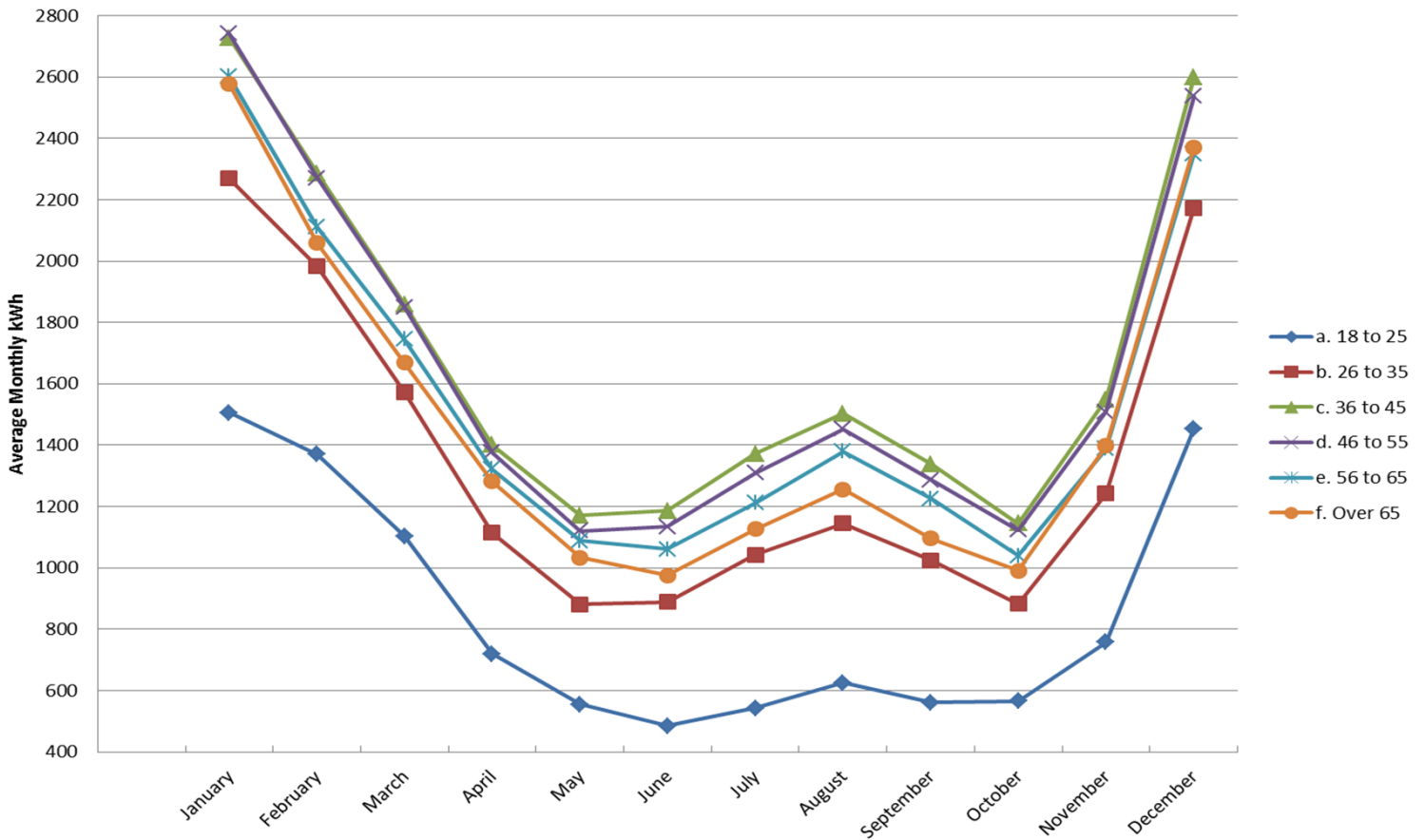
Rate Schedule	Average Monthly kWh												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Avg
Schedule 16 (n=3674)	2,025	1,669	1,402	1,105	951	984	1,166	1,326	1,161	960	1,197	1,889	1,304
Schedule 17 (n=70)	2,258	1,888	1,597	1,207	938	838	943	1,079	978	923	1,293	2,096	1,346
Schedule 16 < \$30,000 (n=663)	1,847	1,562	1,300	991	822	814	948	1,062	929	807	1,083	1,743	1,147

Average Monthly Usage by Age Group (Source : Actual Usage, Q55 Responses)



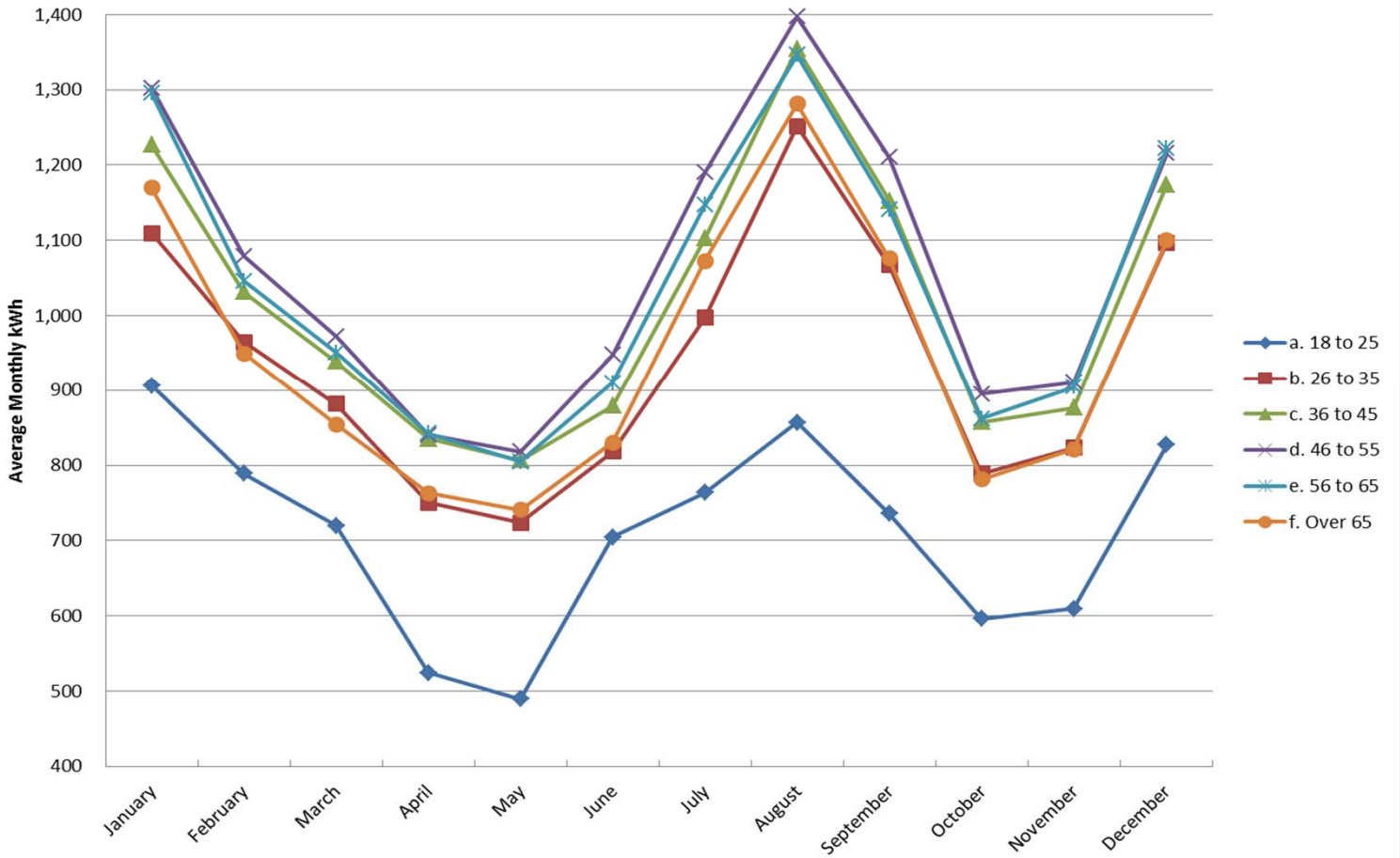
Age Group	Average Monthly kWh												Avg
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
18 to 25 (n=87)	1,287	1,185	975	657	529	557	617	701	615	569	702	1,227	831
26 to 35 (n=457)	1,826	1,600	1,324	998	838	871	1,035	1,184	1,049	866	1,104	1,774	1,184
36 to 45 (n=501)	2,192	1,827	1,531	1,204	1,049	1,072	1,269	1,435	1,260	1,047	1,323	2,086	1,428
46 to 55 (n=723)	2,181	1,804	1,513	1,184	1,020	1,075	1,271	1,436	1,267	1,046	1,285	2,022	1,413
56 to 65 (n=933)	2,085	1,692	1,436	1,146	987	1,007	1,187	1,360	1,193	979	1,210	1,908	1,342
Over 65 (n=977)	1,965	1,586	1,327	1,069	922	925	1,106	1,262	1,092	913	1,155	1,828	1,250

Average Monthly Usage by Age Group for Electric Heat Customers (Source: Actual Usage, Q1B Responses)



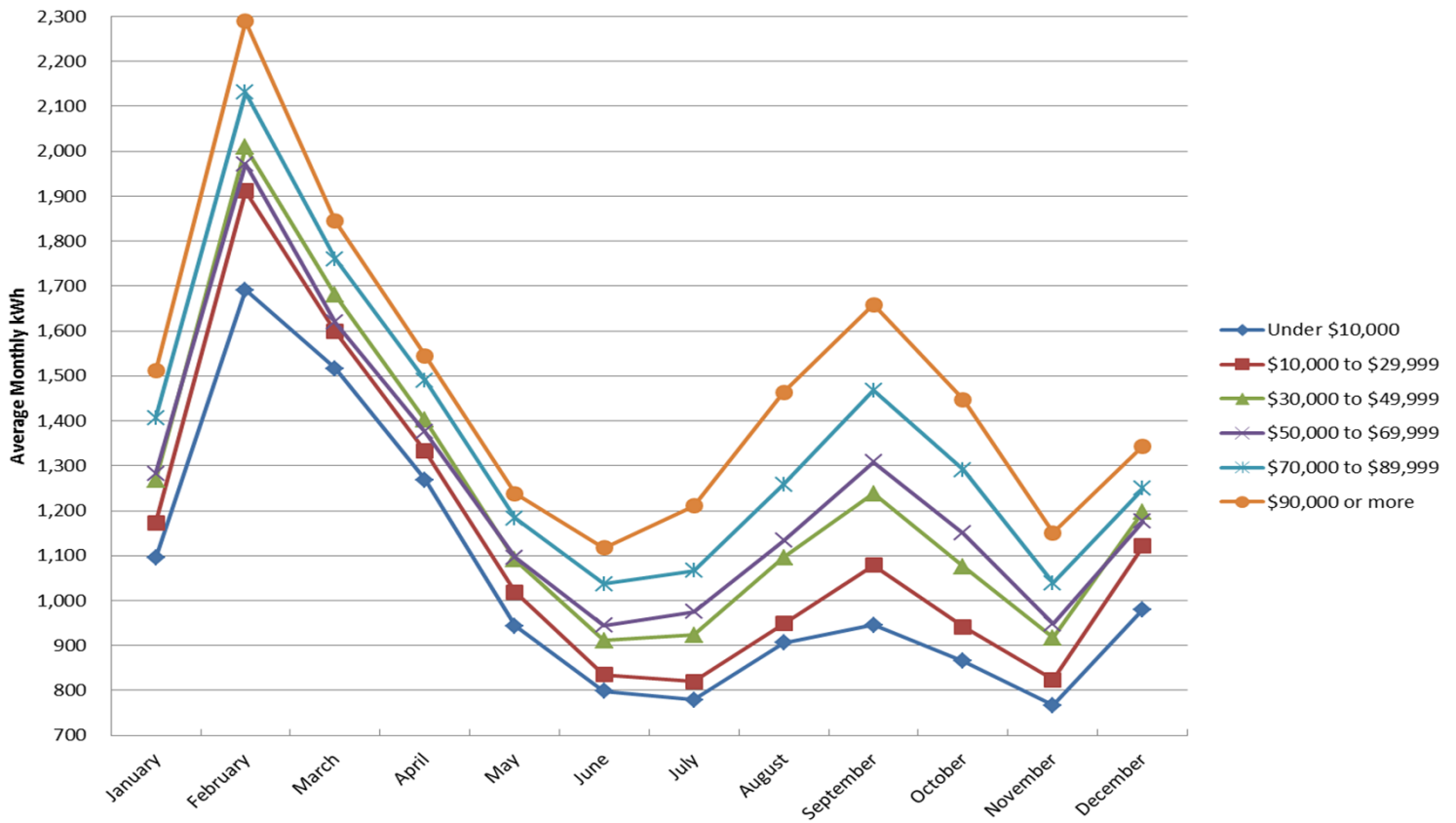
Age Group	Average Monthly kWh												Avg
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
18 to 25 (n=58)	1,507	1,371	1,104	720	555	485	543	626	562	566	758	1,454	918
26 to 35 (n=266)	2,268	1,982	1,574	1,115	881	890	1,043	1,145	1,025	883	1,242	2,173	1,330
36 to 45 (n=279)	2,728	2,285	1,859	1,401	1,170	1,185	1,372	1,503	1,338	1,145	1,549	2,600	1,660
46 to 55 (n=395)	2,741	2,271	1,850	1,377	1,121	1,134	1,309	1,452	1,286	1,123	1,509	2,538	1,633
56 to 65 (n=505)	2,601	2,111	1,745	1,322	1,089	1,062	1,212	1,379	1,226	1,039	1,389	2,349	1,551
Over 65 (n=470)	2,577	2,058	1,669	1,281	1,033	975	1,127	1,256	1,095	991	1,397	2,371	1,488

Average Monthly Usage by Age Group for Natural Gas Heat Customers (Source: Actual Usage, Q1B Responses)



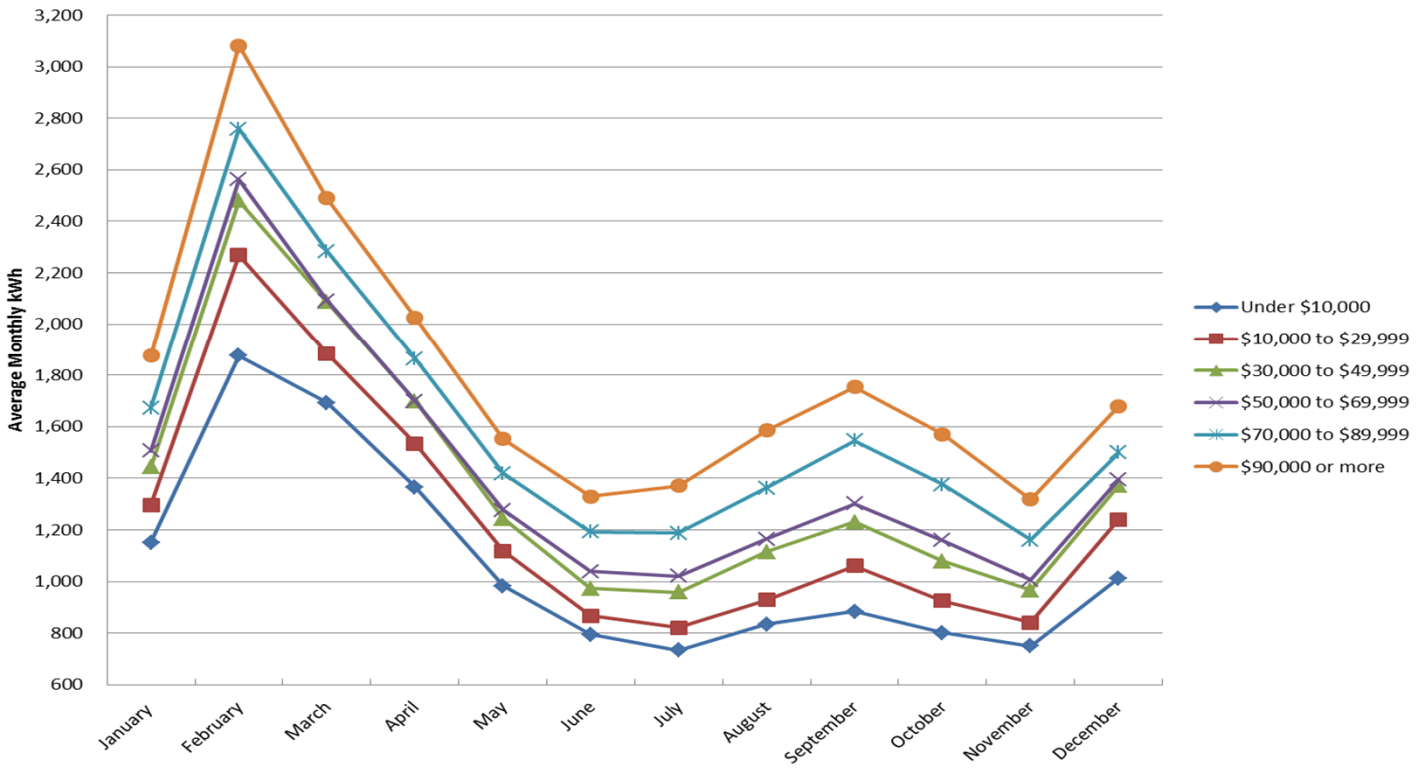
Age Group	Average Monthly kWh												Avg
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
18 to 25 (n=25)	906	789	720	525	489	704	764	857	736	596	609	827	659
26 to 35 (n=149)	1,110	965	881	750	723	819	997	1,252	1,067	789	823	1,097	900
36 to 45 (n=159)	1,227	1,031	939	836	807	879	1,102	1,354	1,153	857	877	1,174	1,008
46 to 55 (n=242)	1,302	1,079	972	840	818	948	1,190	1,397	1,211	895	911	1,216	1,046
56 to 65 (n=306)	1,296	1,046	951	842	805	910	1,147	1,347	1,141	862	905	1,223	1,019
Over 65 (n=323)	1,170	949	854	763	741	830	1,073	1,282	1,076	781	821	1,100	937

Average Monthly Usage by Income (Source: Actual Usage, Q56 Responses)



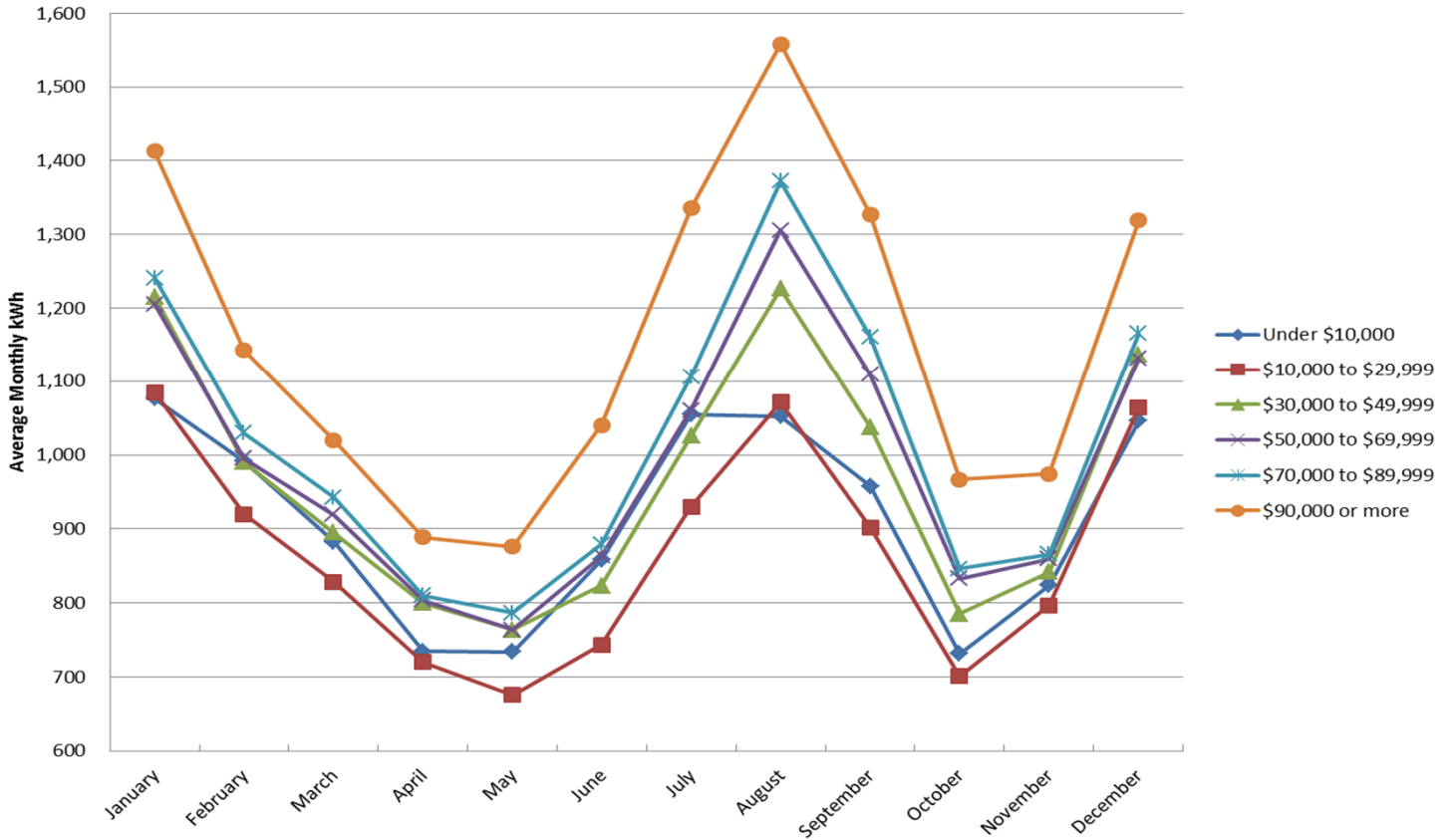
Income	Average Monthly kWh												Avg
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Under \$10,000 (n=121)	1,691	1,516	1,269	943	798	779	907	946	865	767	980	1,618	1,095
\$10,000 to \$29,999 (n=600)	1,911	1,599	1,333	1,019	835	820	949	1,079	941	824	1,121	1,798	1,173
\$30,000 to \$49,999 (n=780)	2,009	1,680	1,402	1,090	911	923	1,096	1,238	1,076	917	1,197	1,889	1,268
\$50,000 to \$69,999 (n=631)	1,972	1,619	1,375	1,096	945	975	1,134	1,309	1,150	947	1,177	1,824	1,283
\$70,000 to \$89,999 (n=427)	2,131	1,760	1,490	1,183	1,038	1,067	1,259	1,467	1,291	1,039	1,250	1,992	1,406
\$90,000 or more (n=562)	2,289	1,844	1,544	1,239	1,117	1,211	1,463	1,658	1,447	1,151	1,344	2,114	1,512

Average Usage by Month by Income for Electric Heat Customers (Source: Actual Usage, Q56, Q1B Responses)



Income	Average Monthly kWh												Avg
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Under \$10,000 (n=82)	1,876	1,692	1,365	983	794	733	834	884	802	751	1,012	1,817	1,152
\$10,000 to \$29,999 (n=367)	2,269	1,883	1,534	1,118	868	822	928	1,061	925	841	1,240	2,107	1,296
\$30,000 to \$49,999 (n=436)	2,479	2,088	1,699	1,243	973	959	1,114	1,230	1,079	966	1,372	2,322	1,443
\$50,000 to \$69,999 (n=308)	2,562	2,091	1,699	1,276	1,039	1,021	1,164	1,301	1,159	1,006	1,395	2,351	1,506
\$70,000 to \$89,999 (n=224)	2,758	2,284	1,864	1,418	1,192	1,187	1,362	1,545	1,376	1,160	1,500	2,569	1,672
\$90,000 or more (n=269)	3,082	2,489	2,025	1,552	1,330	1,370	1,585	1,754	1,571	1,317	1,680	2,830	1,876

Average Usage by Month by Income for Natural Gas Heat Customers (Source: Actual Usage, Q56 Responses, Q1B Responses)



Income	Average Monthly kWh												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
Under \$10,000 (n=19)	1,077	992	883	735	734	858	1,055	1,053	958	731	824	1,046	864
\$10,000 to \$29,999 (n=146)	1,085	920	828	720	676	743	930	1,071	902	701	797	1,064	861
\$30,000 to \$49,999 (n=232)	1,215	990	895	800	764	823	1,026	1,227	1,038	785	842	1,136	944
\$50,000 to \$69,999 (n=223)	1,205	996	919	804	764	863	1,061	1,306	1,110	833	859	1,131	962
\$70,000 to \$89,999 (n=157)	1,241	1,029	943	810	786	879	1,106	1,372	1,161	846	866	1,165	1,008
\$90,000 or more (n=239)	1,413	1,142	1,020	889	876	1,040	1,336	1,559	1,328	967	974	1,319	1,123

Number of Customers by Income by Age
(Source: Q55 Responses, Q56 Responses)

<u>Age Group</u>	<u>Under \$10,000</u>	<u>\$10,000 to \$29,999</u>	<u>\$30,000 to \$49,999</u>	<u>\$50,000 to \$69,999</u>	<u>\$70,000 to \$89,999</u>	<u>\$90,000 or more</u>	<u>Total</u>
18 to 25							
26 to 35							
36 to 45							
46 to 55							
56 to 65							
Over 65							
Total							

Heating Type by Age Group

(Source: Q55 Responses, Q1B Responses)

Heat Type	Age Range										Total Customers		
	18 to 25		26 to 35		36 to 45		46 to 55		56 to 65			Over 65	
	Customers	% of Type	Customers	% of Type	Customers	% of Type	Customers	% of Type	Customers	% of Type		Customers	% of Type
Electricity	[REDACTED]												
Natural Gas	[REDACTED]												
Propane	[REDACTED]												
Oil	[REDACTED]												
Wood	[REDACTED]												
Other	[REDACTED]												
Total	[REDACTED]												

Heat Type	Age Range										Total Customers	% of Age		
	18 to 25		26 to 35		36 to 45		46 to 55		56 to 65				Over 65	
	Customers	% of Age	Customers	% of Age	Customers	% of Age	Customers	% of Age	Customers	% of Age			Customers	% of Age
Electricity	[REDACTED]													
Natural Gas	[REDACTED]													
Propane	[REDACTED]													
Oil	[REDACTED]													
Wood	[REDACTED]													
Other	[REDACTED]													
Total	[REDACTED]													

Heating Type by Income Level

(Source: Q1B Responses, Q56 Responses)

Heat Type	Income Level												Total Customers
	Under \$10,000		\$10,000 to \$29,999		\$30,000 to \$49,999		\$50,000 to \$69,999		\$70,000 to \$89,999		\$90,000 or more		
	Cust	% of Type	Cust	% of Type	Cust	% of Type	Cust	% of Type	Cust	% of Type	Cust	% of Type	
Electricity	[REDACTED]												
Natural Gas	[REDACTED]												
Propane	[REDACTED]												
Oil	[REDACTED]												
Wood	[REDACTED]												
Other	[REDACTED]												
Grand Total	[REDACTED]												

Heat Type	Income Level												Total Customers
	Under \$10,000		\$10,000 to \$29,999		\$30,000 to \$49,999		\$50,000 to \$69,999		\$70,000 to \$89,999		\$90,000 or more		
	Cust	% of Income	Cust	% of Income	Cust	% of Income	Cust	% of Income	Cust	% of Income	Cust	% of Income	
Electricity	[REDACTED]												
Natural Gas	[REDACTED]												
Propane	[REDACTED]												
Oil	[REDACTED]												
Wood	[REDACTED]												
Other	[REDACTED]												
Grand Total	[REDACTED]												

Type of Residence by Age Group

(Source: Q48 Responses, Q55 Responses)

<u>Age Group</u>	<u>Apartment/Condo</u>		<u>Duplex/Triplex</u>		<u>Manufactured/Trailer</u>		<u>Single Family</u>		<u>Customers</u>
	<u>Cust</u>	<u>% of Age</u>	<u>Cust</u>	<u>% of Age</u>	<u>Cust</u>	<u>% of Age</u>	<u>Cust</u>	<u>% of Age</u>	
18 to 25									
26 to 35									
36 to 45									
46 to 55									
56 to 65									
Over 65									
Total									

<u>Age Group</u>	<u>Apartment/Condo</u>		<u>Duplex/Triplex</u>		<u>Manufactured/Trailer</u>		<u>Single Family</u>		<u>Customers</u>
	<u>Cust</u>	<u>% of Response</u>	<u>Cust</u>	<u>% of Response</u>	<u>Cust</u>	<u>% of Response</u>	<u>Cust</u>	<u>% of Response</u>	
18 to 25									
26 to 35									
36 to 45									
46 to 55									
56 to 65									
Over 65									
Total									

Type of Residence by Income Level

(Source: Q56 Responses, Q48 Responses)

<u>Income Level</u>	<u>Apartment/Condo</u>		<u>Duplex/Triplex</u>		<u>Manufactured/Trailer</u>		<u>Single Family</u>		<u>Customers</u>
	<u>Cust</u>	<u>% of Income</u>	<u>Cust</u>	<u>% of Income</u>	<u>Cust</u>	<u>% of Income</u>	<u>Cust</u>	<u>% of Income</u>	
Under \$10,000									
\$10,000 to \$19,999									
\$20,000 to \$29,999									
\$30,000 to \$39,999									
\$40,000 to \$49,999									
\$50,000 to \$59,999									
\$60,000 to \$69,999									
\$70,000 to \$79,999									
\$80,000 to \$89,999									
\$90,000 to \$100,000									
\$100,001 or more									
Total									

<u>Income Level</u>	<u>Apartment/Condo</u>		<u>Duplex/Triplex</u>		<u>Manufactured/Trailer</u>		<u>Single Family</u>		<u>Customers</u>
	<u>Cust</u>	<u>% of Response</u>	<u>Cust</u>	<u>% of Response</u>	<u>Cust</u>	<u>% of Response</u>	<u>Cust</u>	<u>% of Response</u>	
Under \$10,000									
\$10,000 to \$19,999									
\$20,000 to \$29,999									
\$30,000 to \$39,999									
\$40,000 to \$49,999									
\$50,000 to \$59,999									
\$60,000 to \$69,999									
\$70,000 to \$79,999									
\$80,000 to \$89,999									
\$90,000 to \$100,000									
\$100,001 or more									
Total									

Age & Income by Rent or Own

(Source: Q52 Responses, Q55 Responses, Q56 Responses)

<u>Age Group</u>	<u>Own</u>		<u>Rent</u>		<u>Total</u>
	<u>Customers</u>	<u>%</u>	<u>Customers</u>	<u>%</u>	
18 to 25					
26 to 35					
36 to 45					
46 to 55					
56 to 65					
Over 65					
Total					

<u>Income Level</u>	<u>Own</u>		<u>Rent</u>		<u>Total</u>
	<u>Customers</u>	<u>%</u>	<u>Customers</u>	<u>%</u>	
Under \$10,000					
\$10,000 to \$19,999					
\$20,000 to \$29,999					
\$30,000 to \$39,999					
\$40,000 to \$49,999					
\$50,000 to \$59,999					
\$60,000 to \$69,999					
\$70,000 to \$79,999					
\$80,000 to \$89,999					
\$90,000 to \$100,000					
\$100,001 or more					
Total					

Average Monthly Usage by Household Size

(Source: Actual Usage, Q54 Responses)

Avg Mo Grp	Household Size (includes self)										Total	
	1		2		3		4		5			6 or more
	Cust	% of Group	Cust	% of Group	Cust	% of Group	Cust	% of Group	Cust	% of Group	Cust	% of Group
0-600 kWh	231	47%	177	36%	37	8%	23	5%	9	2%	2	0%
601-1000 kWh	247	27%	411	46%	108	12%	71	8%	35	4%	13	1%
1001-1500 kWh	194	18%	466	43%	174	16%	129	12%	64	6%	36	3%
1501-2000 kWh	81	11%	326	44%	121	16%	108	15%	60	8%	36	5%
>2000 kWh	<u>39</u>	7%	<u>185</u>	35%	<u>93</u>	17%	<u>111</u>	21%	<u>52</u>	10%	<u>53</u>	10%
Total	792	21%	1,565	42%	533	14%	442	12%	220	6%	140	4%

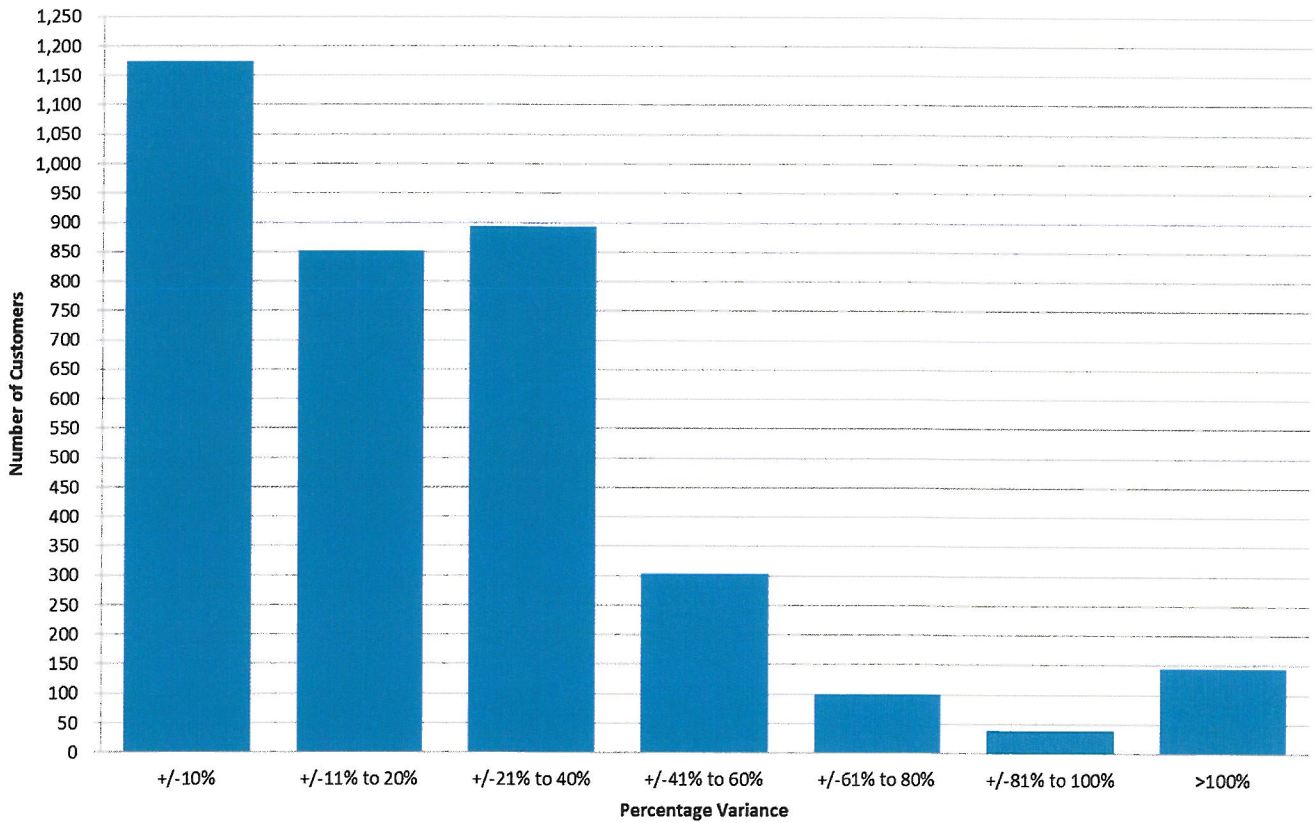
Avg Mo Grp	Household Size (includes self)										Total	
	1		2		3		4		5			6 or more
	Cust	% of Response	Cust	% of Response	Cust	% of Response	Cust	% of Response	Cust	% of Response	Cust	% of Response
0-600 kWh	231	29%	177	11%	37	7%	23	5%	9	4%	2	1%
601-1000 kWh	247	31%	411	26%	108	20%	71	16%	35	16%	13	9%
1001-1500 kWh	194	24%	466	30%	174	33%	129	29%	64	29%	36	26%
1501-2000 kWh	81	10%	326	21%	121	23%	108	24%	60	27%	36	26%
>2000 kWh	<u>39</u>	5%	<u>185</u>	12%	<u>93</u>	17%	<u>111</u>	25%	<u>52</u>	24%	<u>53</u>	38%
Total	792	100%	1,565	100%	533	100%	442	100%	220	100%	140	100%

Customers Appliance Saturation by Usage Level

(Source: Actual Usage, Q12-Q31 Responses)

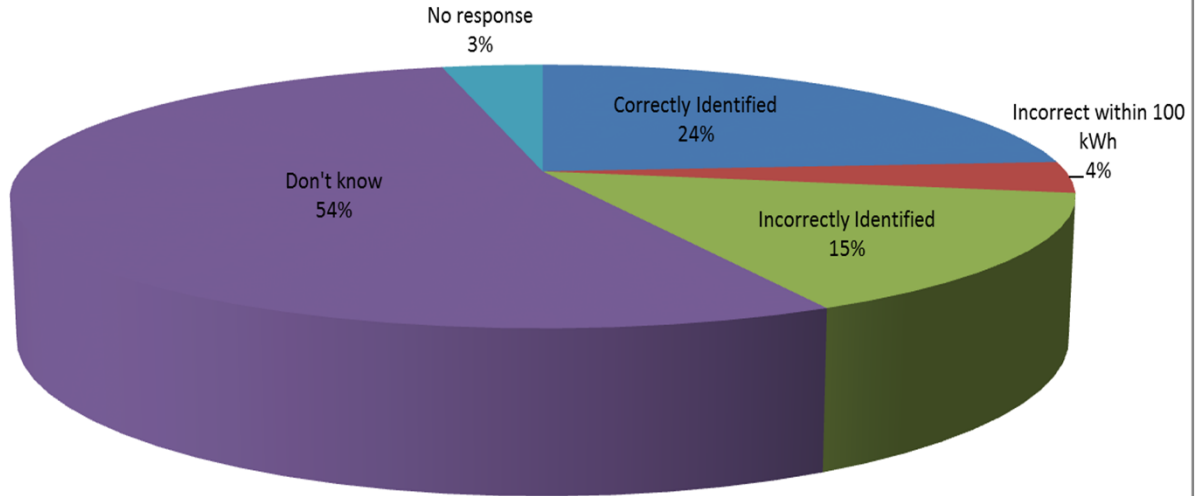
Customers with Average Monthly Usage of: Type of Appliance	0-600 kWh		601-1000 kWh		Over 1000	
	Customers	% of	Customers	% of	Customers	% of
Refrigerator						
Electric Oven						
Freezer						
Dishwasher						
Microwave						
A/C						
Topload Washing Machine						
Frontload Washer Machine						
Dryer						
Flat Screen TV						
Non Flat Screen TV						
DVD/DVR Player						
Computer						
Tablet/Phone						
Home Audio						
Spa/Hot Tub/Pool						

**Customer Average Actual Monthly Bill versus Customer Estimated
Average Monthly Bill
(Source: Actual kWh, Q33 Responses)**



<u>Range</u>	<u>Customers</u>	<u>%</u>
+/-10%	1175	33%
+/-11% to 20%	852	24%
+/-21% to 40%	894	25%
+/-41% to 60%	304	9%
+/-61% to 80%	101	3%
+/-81% to 100%	39	1%
>100%	145	4%
Total	3510	100%

**Percentage of Customers with Actual Usage Range Identified
(Source: Actual Usage, Q38 Responses)**



<u>Identified</u>	<u>Customers</u>	<u>%</u>
Correctly Identified	901	24%
Incorrect within 100 kWh	145	4%
Incorrectly Identified	565	15%
Don't know	2,035	54%
No response	<u>139</u>	<u>3%</u>
	3,785	100%

Breakdown by Age for Response to "Rather Pay a Flat Rate"

(Source: Q55 Responses, Q45 Responses)

<u>Age Group</u>	<u>Strongly agree</u>		<u>Somewhat agree</u>		<u>Somewhat disagree</u>		<u>Strongly disagree</u>		<u>Total Customers</u>
	<u>Customers</u>	<u>% of Age Group</u>	<u>Customers</u>	<u>% of Age Group</u>	<u>Customers</u>	<u>% of Age Group</u>	<u>Customers</u>	<u>% of Age Group</u>	
18 to 25									
26 to 35									
36 to 45									
46 to 55									
56 to 65									
Over 65									
Total									

<u>Age Group</u>	<u>Strongly agree</u>		<u>Somewhat agree</u>		<u>Somewhat disagree</u>		<u>Strongly disagree</u>		<u>Total Customers</u>
	<u>Customers</u>	<u>% of Response</u>	<u>Customers</u>	<u>% of Response</u>	<u>Customers</u>	<u>% of Response</u>	<u>Customers</u>	<u>% of Response</u>	
18 to 25									
26 to 35									
36 to 45									
46 to 55									
56 to 65									
Over 65									
Total									

Breakdown by Income Level for Response to "Rather Pay a Flat Rate"

(Source: Q56 Responses, Q45 Responses)

<u>Income Level</u>	<u>Strongly agree</u>		<u>Somewhat agree</u>		<u>Somewhat disagree</u>		<u>Strongly disagree</u>		<u>Total Customers</u>
	<u>Customers</u>	<u>% of Income Level</u>	<u>Customers</u>	<u>% of Income Level</u>	<u>Customers</u>	<u>% of Income Level</u>	<u>Customers</u>	<u>% of Income Level</u>	
a. Under \$10,000									
b. \$10,000 to \$19,999									
c. \$20,000 to \$29,999									
d. \$30,000 to \$39,999									
e. \$40,000 to \$49,999									
f. \$50,000 to \$59,999									
g. \$60,000 to \$69,999									
h. \$70,000 to \$79,999									
i. \$80,000 to \$89,999									
j. \$90,000 to \$100,000									
k. \$100,001 or more									
Total									

<u>Income Level</u>	<u>Strongly agree</u>		<u>Somewhat agree</u>		<u>Somewhat disagree</u>		<u>Strongly disagree</u>		<u>Total Customers</u>
	<u>Customers</u>	<u>% of Response</u>	<u>Customers</u>	<u>% of Response</u>	<u>Customers</u>	<u>% of Response</u>	<u>Customers</u>	<u>% of Response</u>	
a. Under \$10,000									
b. \$10,000 to \$19,999									
c. \$20,000 to \$29,999									
d. \$30,000 to \$39,999									
e. \$40,000 to \$49,999									
f. \$50,000 to \$59,999									
g. \$60,000 to \$69,999									
h. \$70,000 to \$79,999									
i. \$80,000 to \$89,999									
j. \$90,000 to \$100,000									
k. \$100,001 or more									
Total									

Note: There were 334 customers who choose either "Not to say" or not to respond.

Breakdown by Usage Level for Response to "Rather Pay a Flat Rate"

(Source: Actual Usage, Q45 Responses)

<u>Usage Level</u>	<u>Strongly agree</u>		<u>Somewhat agree</u>		<u>Somewhat disagree</u>		<u>Strongly disagree</u>		<u>Total Customers</u>
	<u>Customers</u>	<u>% of Usage Level</u>	<u>Customers</u>	<u>% of Usage Level</u>	<u>Customers</u>	<u>% of Usage Level</u>	<u>Customers</u>	<u>% of Usage Level</u>	
a. 0-600 kWh									
d. 601-1000 kWh									
f. 1001-1500 kWh									
h. 1501-2000 kWh									
j. >2000 kWh									
Total									

<u>Usage Level</u>	<u>Strongly agree</u>		<u>Somewhat agree</u>		<u>Somewhat disagree</u>		<u>Strongly disagree</u>		<u>Total Customers</u>
	<u>Customers</u>	<u>% of Response</u>	<u>Customers</u>	<u>% of Response</u>	<u>Customers</u>	<u>% of Response</u>	<u>Customers</u>	<u>% of Response</u>	
a. 0-600 kWh									
d. 601-1000 kWh									
f. 1001-1500 kWh									
h. 1501-2000 kWh									
j. >2000 kWh									
Total									

Breakdown by Usage Level for Response to "Has the Tiered Rate Structure Influenced your Electricity Usage Decisions"
 (Source: Actual Usage, Q44 Responses)

<u>Usage Level</u>	<u>No</u>		<u>Somewhat</u>		<u>Yes</u>		<u>Total Customers</u>
	<u>Customers</u>	<u>% of Usage Level</u>	<u>Customers</u>	<u>% of Usage Level</u>	<u>Customers</u>	<u>% of Usage Level</u>	
a. 0-600 kWh							
d. 601-1000 kWh							
f. 1001-1500 kWh							
h. 1501-2000 kWh							
j. >2000 kWh							
Total							

<u>Usage Level</u>	<u>No</u>		<u>Somewhat</u>		<u>Yes</u>		<u>Total Customers</u>
	<u>Customers</u>	<u>% of Response</u>	<u>Customers</u>	<u>% of Response</u>	<u>Customers</u>	<u>% of Response</u>	
a. 0-600 kWh							
d. 601-1000 kWh							
f. 1001-1500 kWh							
h. 1501-2000 kWh							
j. >2000 kWh							
Total							

Breakdown by Income Level for Response to "Rather Pay a Higher Basic Charge & Lower Energy Rates"

(Source: Q56 Responses, Q46 Responses)

<u>Income Level</u>	<u>Strongly agree</u>		<u>Somewhat agree</u>		<u>Somewhat disagree</u>		<u>Strongly disagree</u>		<u>Total Customers</u>
	<u>Customers</u>	<u>% of Income Level</u>	<u>Customers</u>	<u>% of Income Level</u>	<u>Customers</u>	<u>% of Income Level</u>	<u>Customers</u>	<u>% of Income Level</u>	
a. Under \$10,000									
b. \$10,000 to \$19,999									
c. \$20,000 to \$29,999									
d. \$30,000 to \$39,999									
e. \$40,000 to \$49,999									
f. \$50,000 to \$59,999									
g. \$60,000 to \$69,999									
h. \$70,000 to \$79,999									
i. \$80,000 to \$89,999									
j. \$90,000 to \$100,000									
k. \$100,001 or more									
Total									

<u>Income Level</u>	<u>Strongly agree</u>		<u>Somewhat agree</u>		<u>Somewhat disagree</u>		<u>Strongly disagree</u>		<u>Total Customers</u>
	<u>Customers</u>	<u>% of Response</u>	<u>Customers</u>	<u>% of Response</u>	<u>Customers</u>	<u>% of Response</u>	<u>Customers</u>	<u>% of Response</u>	
a. Under \$10,000									
b. \$10,000 to \$19,999									
c. \$20,000 to \$29,999									
d. \$30,000 to \$39,999									
e. \$40,000 to \$49,999									
f. \$50,000 to \$59,999									
g. \$60,000 to \$69,999									
h. \$70,000 to \$79,999									
i. \$80,000 to \$89,999									
j. \$90,000 to \$100,000									
k. \$100,001 or more									
Total									