

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC JOINT APPLICATION OF)	
LOUISVILLE GAS AND ELECTRIC)	
COMPANY AND KENTUCKY UTILITIES)	
COMPANY FOR A CERTIFICATE OF PUBLIC)	CASE NO. 2018-00005
CONVENIENCE AND NECESSITY FOR FULL)	
DEPLOYMENT OF ADVANCED METERING)	
SYSTEMS)	

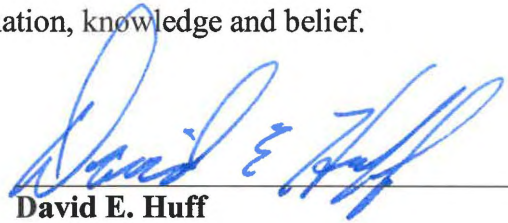
RESPONSE OF
LOUISVILLE GAS AND ELECTRIC COMPANY
AND
KENTUCKY UTILITIES COMPANY
TO CAC'S INITIAL REQUESTS FOR INFORMATION
DATED APRIL 2, 2018

FILED: APRIL 13, 2018

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) **SS:**
COUNTY OF JEFFERSON)

The undersigned, **David E. Huff**, being duly sworn, deposes and says that he is Director of Customer Energy Efficiency & Emerging Technologies for LG&E and KU Services Company, and that he has personal knowledge of the matters set forth in the responses for which he is identified as the witness, and that the answers contained therein are true and correct to the best of his information, knowledge and belief.



David E. Huff

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 13th day of April 2018.



Notary Public (SEAL)

My Commission Expires:
JUDY SCHOOLER
Notary Public, State at Large, KY
My commission expires July 11, 2018
Notary ID # 512743

Louisville Gas and Electric Company and Kentucky Utilities Company
Response to CAC's Initial Requests for Information
Dated April 2, 2018

Case No. 2018-00005

Question No. 1

Witness: John P. Malloy

- Q-1. Please refer to page 2, line 21 through page 3, lines 1-5 of Mr. Malloy's testimony. In his explanation of the net savings that will result from full deployment of AMS, he includes the net savings that will result from "reduced energy consumption by customers as they become more aware of their consumption patterns by reviewing the granular consumption information AMS provides and seeking to increase their energy-efficiency measures and behaviors." How can the companies' customers with low income without internet access reduce their energy consumption through AMS?
- A-1. AMS-related features like usage and bill alerts require only a phone capable of receiving text messages, which devices are typically broadly available. Additionally, the Companies plan to make access to the consumption data available via the Low Income Website so that authorized third-party agencies can share the information with their clients. Therefore, although the Companies do not dispute that having internet access will help customers maximize potential AMS benefits, having internet access is not necessary to receive most categories of AMS benefits.

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Question No. 2

Witness: John P. Malloy

- Q-2. How will the companies make consumption information provided by AMS available to customers with low income who do not have internet access?
- A-2. There is reason to believe internet access is reasonably common in the Companies' service territories and has grown over time. See response to Question No. 3 for 2016 Census data estimating internet subscriptions by income level.

Beyond the household, free internet access is widely available from public libraries and many national chains (available at: <https://lifelife.com/all-the-national-chains-that-offer-free-wi-fi-1646148637> and <http://www.wififreespot.com/ky.php>, both accessed April 6, 2018).

This was also a topic discussed within the AMS Collaborative. See Exhibit DEH-3, pages 32-33 and response to Question No. 1 as well for additional options to access consumption information provided by AMS.

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Question No. 3

Witness: John P. Malloy

- Q-3. Page 26, footnote 35 of Mr. Malloy’s testimony states that 70.9% of Kentucky households have broad-band internet subscriptions. What percentage of Kentuckians living at or below the poverty level have broadband internet access or other internet access, such as dial-up?
- A-3. The information in the table below is from the U.S. Census Bureau, 2016 American Community Survey 1-Year Estimates. The data tables did not have “poverty level” as a category.

	Kentucky	
	Estimate	Margin of Error
Less than \$10,000:	164,883	+/-6,076
With dial-up Internet subscription alone	730	+/-450
With a broadband Internet subscription	82,909	+/-4,298
Without an Internet subscription	81,244	+/-4,532
\$10,000 to \$19,999:	213,417	+/-7,435
With dial-up Internet subscription alone	796	+/-334
With a broadband Internet subscription	114,609	+/-5,131
Without an Internet subscription	98,012	+/-5,222
\$20,000 to \$34,999:	284,236	+/-6,961
With dial-up Internet subscription alone	1,677	+/-467
With a broadband Internet subscription	197,512	+/-6,657
Without an Internet subscription	85,047	+/-3,847
\$35,000 to \$49,999:	242,118	+/-8,637
With dial-up Internet subscription alone	1,598	+/-566
With a broadband Internet subscription	190,738	+/-7,252
Without an Internet subscription	49,782	+/-3,731
\$50,000 to \$74,999:	308,458	+/-8,470
With dial-up Internet subscription alone	1,757	+/-620
With a broadband Internet subscription	267,312	+/-7,712
Without an Internet subscription	39,389	+/-3,293
\$75,000 or more:	504,594	+/-10,026
With dial-up Internet subscription alone	993	+/-385

With a broadband Internet subscription	474,906	+/-9,708
Without an Internet subscription	28,695	+/-2,629
Total:	1,717,706	+/-9,131
Source: U.S. Census Bureau, 2016 American Community Survey 1-Year Estimates		

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Question No. 4

Witness: John P. Malloy

- Q-4. What percentage of Kentucky Utilities Company customers have internet access?
- A-4. Information for Kentucky residents who are also customers of Kentucky Utilities Company and have internet access is not publicly available or collected by the Company.

**Louisville Gas and Electric Company and Kentucky Utilities Company
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Question No. 5

Witness: John P. Malloy

- Q-5. What percentage of Kentucky Utilities Company customers with low income have internet access?
- A-5. Information for Kentucky residents who are also customers of Kentucky Utilities Company, classified as low income, and have internet access is not publicly available or collected by the Company.

**Louisville Gas and Electric Company and Kentucky Utilities Company
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Question No. 6

Witness: John P. Malloy

- Q-6. What consideration have the companies given to the barriers that customers with low income face that limit their ability to benefit from the savings opportunities of AMS?
- A-6. See response to AG 1-35.

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Question No. 7

Witness: John P. Malloy

- Q-7. How do the companies propose to deal with the barriers that customers with low income face that limit their ability to benefit from energy consumption savings through AMS?
- A-7. See responses to Question Nos. 1 and 2. There are multiple options available for customers to receive access to more granular consumption data. What customers are able to do with that data is a personal choice but there are a number of third-party agencies designed to assist low income customers improve their energy efficiency. Beyond those, the Companies' We Care program also stands to benefit from AMS data. The We Care program is for income-eligible customers to receive an in-home energy assessment. Once the assessment is complete, customers are eligible to receive various energy efficiency improvements performed on their home at no additional cost. Empowering customers with more AMS-enabled information about their usage could help them, or those who advocate and assist their needs, to better understand the impact these improvements have on their bill and other ways to save.

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Question No. 8

Witness: David E. Huff

- Q-8. Please refer to page 12, lines 13-16 of Mr. Malloy's testimony. In describing the participating customers in the 2014 DSM-EE AMS Customer Service Offering, he states that they are "geographically diverse, spanning various topographies, population densities, and socio-economic segments throughout the Companies' Kentucky service territories."
- a. What percentage of the participating customers in the Customer Service Offering are customers with low income, in that they live at or below the poverty level?
 - b. Please provide the detailed breakdown of the socio-economic segments of customers who have elected to participate in the AMS Customer Service Offering, to date.
 - c. Please provide the percentage of the customers who have elected to participate in the AMS Customer Offering who also participate in income-based assistance programs such as heating assistance or WeCare.
- A-8.
- a. The Companies do not collect personal or household income on customers.
 - b. The Companies do not collect income, education or occupation information from account holders.
 - c. 3.1% of AMS Opt-in participants have expressed interest in participating in the WeCare program, which includes in-process, cancelled, and ineligible enrollments. 1.8% of AMS Opt-in participants have completed the process of participation in the WeCare program.

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Question No. 9

Witness: David E. Huff

Q-9. Mr. Malloy’s testimony on page 13, lines 6-10, refers to the 2016 Bellomy Research Study of the AMS Customer Service Offering participants who had accessed MyMeter Dashboard. The testimony states that half of those persons had programmed their programmable thermostats. How many of these participants who programmed their programmable thermostats are customers with low income?

A-9. The table below shows the requested results by income.

	Banner 1 - total BY Q.8: Which, if any, of the following steps have you taken to save energy as a result of your participation in the advanced meter service?		
	Total	Utility - LG&E	Utility - KU
	Programmed the temperature settings on your existing thermostat	Programmed the temperature settings on your existing thermostat	Programmed the temperature settings on your existing thermostat
	A	B	C
Q.C4: Which of the following income categories includes your household income?			
Total Respondents	140	67	73
Total Answering	140	67	73
Under \$10,000	3 2%	2 3%	1 1%
\$10,000 to \$20,000	3 2%	1 1%	2 3%
Over \$20,000 to \$30,000	4 3%	0 0%	4 5%
Over \$30,000 to \$40,000	3 2%	1 1%	2 3%
Over \$40,000 to \$50,000	8 6%	4 6%	4 5%
Over \$50,000 to \$75,000	25 18%	15 22%	10 14%
Over \$75,000 to \$100,000	26	11	15

Response to CAC-1 Question No. 9

Page 2 of 2

Huff

	19%	16%	21%
Over \$100,000 to \$150,000	27 19%	13 19%	14 19%
Over \$150,000 to \$200,000	15 11%	6 9%	9 12%
Over \$200,000	11 8%	8 12%	3 4%
Prefer not to answer	15 11%	6 9%	9 12%

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Question No. 10

Witness: John P. Malloy

Q-10.

- a. The companies have pledged that they do not intend to make changes to their service disconnection or reconnection policies. Are the companies willing to add any additional safeguards to the disconnect process in light of the fact that remote disconnects can be made instantaneously?
- b. If yes, what additional safeguards are the companies willing to add?

A-10.

- a. The Companies' existing service disconnection and reconnection policies are fully compliant with all regulatory and tariff requirements. The Companies are willing to consider additional safeguards but are not aware of any that are warranted at this time.
- b. See response to a.

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Question No. 11

Witness: John P. Malloy

- Q-11. Please provide any data relied upon or in the possession of the companies from other markets that have implemented advanced metering, that demonstrate savings to customers with low income as a result of their having access to more granular energy consumption data.
- A-11. See attached for data the Companies possess in relation to advanced metering and low income customers. Savings referred in the business case are not based upon socioeconomic levels. The savings presented occur across all customers, including low income customers.



Spotlight on Low Income Consumers Final Report



September 18, 2012

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About the Smart Grid Consumer Collaborative (SGCC)

SGCC is a consumer-focused nonprofit organization formed to promote an understanding of the benefits of modernized electrical systems among all stakeholders in the United States. Membership is open to all consumer and environmental advocates, technology vendors, research scientists and electric utilities for sharing in research, best practices and collaborative efforts of the group. Learn more at smartgridcc.org.

About Market Strategies International

This research was conducted and analyzed by Market Strategies International, a market research consultancy with deep expertise in the energy, technology, communications, financial services, and healthcare industries. Learn more at marketstrategies.com.



Background

As grid modernization expands across the U.S. to meet growing electricity demand, it is important to understand how all types of people currently think about smart grid and smart grid-enabled programs. Low income households are one important subset of U.S. consumers. With the U.S. experiencing tough economic conditions, poverty is as high in 2011 as it has been in any year since 1965 with the median household income falling 1.5% in 2011.¹ Low income consumers constitute an even greater percentage of many U.S. utilities' customer bases — in some areas, approaching or exceeding 40% of a utility's residential customer base.

Utilities and regulators are taking a keen interest in evaluating how smart grid and smart meter enabled programs can help mitigate rising energy costs among residential consumers in general, and vulnerable segments, such as those with low income, in particular. Aside from a few empirical studies documenting their energy usage profiles and behavior, little was known about low income consumers' views and opinions about smart grid.

In the Spotlight on Low Income Consumers Study, Smart Grid Consumer Collaborative (SGCC) seeks to understand the perspectives, needs, and attitudes of low income consumers as they relate to grid modernization, energy management, and the environment. The study was designed to gauge low income consumers' awareness, favorability, and understanding of the smart grid, determine how they receive information and their preferred communication methods, and assess the appeal of smart grid benefits and smart meter-enabled programs.

¹ Source: U.S. Census: Income, Poverty, and Health Insurance Coverage in the United States: 2011

Methodology

SGCC commissioned Market Strategies International, Inc. to conduct a telephone survey of 1,001 U.S. low income consumers from July 28 to August 14, 2012.

A national random landline and cell phone sample was used. To qualify, respondents had to be

- Over the age of 18 and head of household
- At least, mutually share in energy decisions for the household
- Qualify as a low income household*
- The sample was stratified by ethnicity, targeting: 400 white; 300 African American; 300 Hispanic.
- Among Hispanics, the interviews were conducted in their preferred language, with 221 interviews completed in Spanish.
- The aggregate data were weighted by age, ethnicity, gender and region to align with low income population parameters.
- The margin of error for the total sample size of 1,001 is +/-3.1 percentage points at a confidence level of 95%.

*Low Income Definition

Similar to the Census Bureau, the study used the following money income thresholds that vary by family size and composition to qualify low income households. If income was above these limits, the interview was terminated.

Number of People in HH	2011 Family Income Before Taxes
1-2	Up to \$20,000
3-4	Up to \$30,000
5-8	Up to \$40,000
9 or more	Up to \$50,000

Consumer Pulse “Wave 2” Survey Comparisons

In order to assess how low income consumers’ views and opinions contrast with those of the general U.S. population, where applicable, their results are compared to the findings from the Wave 2 Consumer Pulse Research program. This study was completed via telephone during the November 12 to December 6, 2011 timeframe. It is part of a series of Consumer Pulse Surveys designed to track public awareness, favorability, and understanding of smart grid and its consumer benefits.

Executive Summary

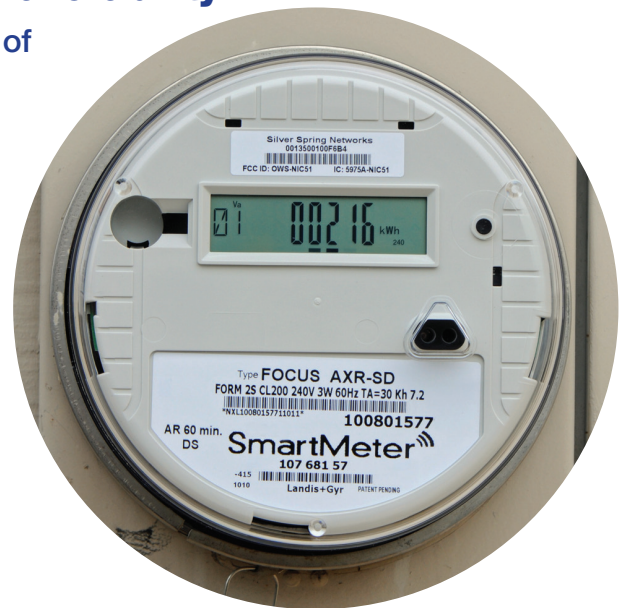
Smart Grid/Meter Awareness and Favorability

Low income consumers have less awareness of smart grid and smart meters than the general population of U.S. consumers (as reflected in Wave 2).

- A significantly lower percentage of low income consumers have a basic or complete understanding of smart grid and smart meters as compared to the general population.

Low income consumers have less favorable feelings toward smart grid and smart meters.

- Four in ten of those aware of smart grid describe their general feelings as favorable; approximately another 20% are neutral.



Preferred Media and Communication Channels

Low income consumers have different communication preferences and behaviors which highlight the need for more effective outreach and targeted communication in their preferred language.

- They are more likely to get news and information from television and less likely to get it from other media than the general population.
- The majority of low income Hispanic respondents say they get their news and information mostly from Spanish-language media.
- Many (42%) say they do not use the internet at all.
- They are far more favorable toward phone calls and automated phone calls than the general population. (For receiving day-to-day electricity usage information, 43% prefer automated phone calls.)
- Three-fifths have a cell phone; one-fifth have a smart phone.

Smart Grid & Smart Meter Benefits

Both low income consumers and those of the general population value multiple smart grid benefits highly.

- When asked to consider the importance of seven potential benefits of smart grid and smart meters, at least 74% of low income consumers said that each benefit is important to them personally — directly in line with findings among the general population.
- “Smart grid senses problems and reroutes power automatically, preventing some outages and reducing the length of those that do occur” is considered the most important benefit of the smart grid among both the general U.S. population and low income consumers.
- Reliability is considered the greatest value add of the smart grid for low income consumers. It received the highest percentage (28%) of respondents willing to pay an extra cost of \$3–\$4 on the monthly electric bill for it.

Smart Grid & Smart Meter Programs

Like the general U.S. population, low income consumers have a strong interest in dynamic pricing programs.

- Low income consumers are as likely as those of the general population to participate in time-of-use (TOU) or critical peak rebate (CPR) programs. Low income consumers perceive that they can save money on energy through these programs.

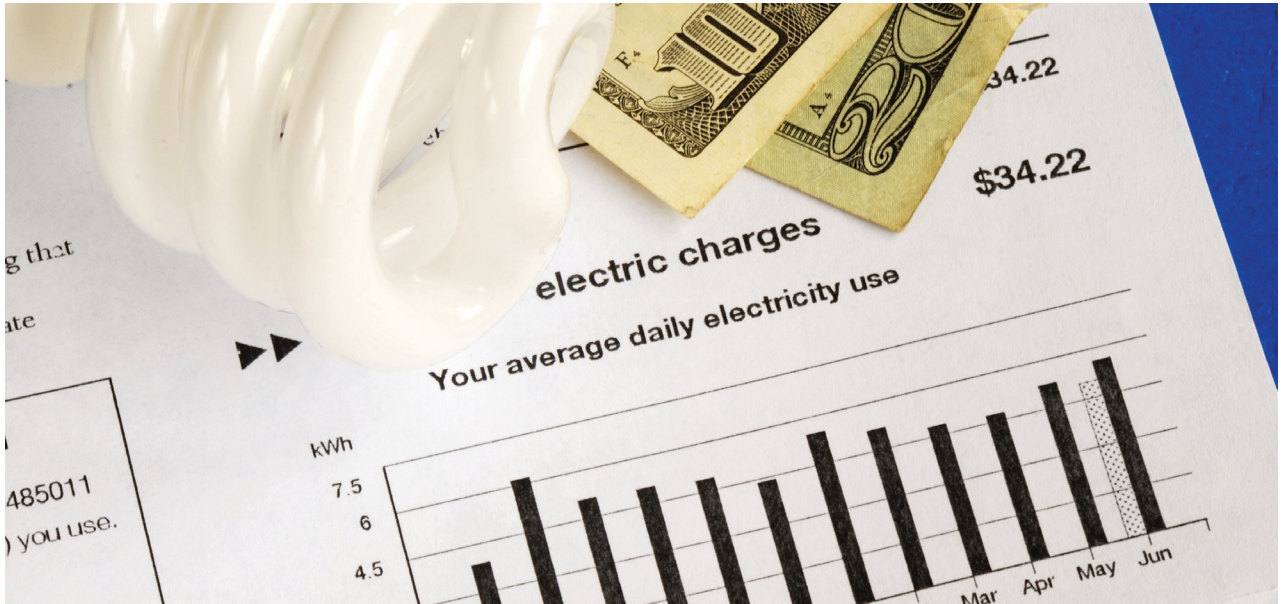
Interest in a “Pay as you go” program is low.

- Only seven percent (7%) say they are very likely to participate.

Energy Efficiency and Environmental Attitudes

Consumers hold similar attitudes about the importance of energy efficiency and helping the environment.

- Energy efficiency is as important to low income consumers (88%) as the general population (91%). However, low income consumers are far less knowledgeable about the actions they can take to make their home more energy efficient.
- While there are some statistically significant differences, low income consumers’ environmental attitudes align fairly closely with those of the general population. Most low income consumers (72%) believe that global warming is real, and that saving energy helps the environment (82%), with 80% reporting that they try to minimize their impact on the environment through daily actions.



Implications

Need for more effective outreach: While there is no evidence here to suggest that low income consumers are generally opposed to smart grid, it will be important to address the fact that their knowledge and support are currently lower than the general population benchmarks.

Customized low income communications: In communicating with low income consumers, it is important to take into account their specific communication capabilities and preferences. For example, using the Spanish language is critical to communicating effectively with many low income Hispanics.

Reliability, plus: Improved reliability is a key driver of smart grid support among low income consumers. Communications targeting this group should therefore stress reliability, but it is also important to note that these consumers value the full range of benefits.

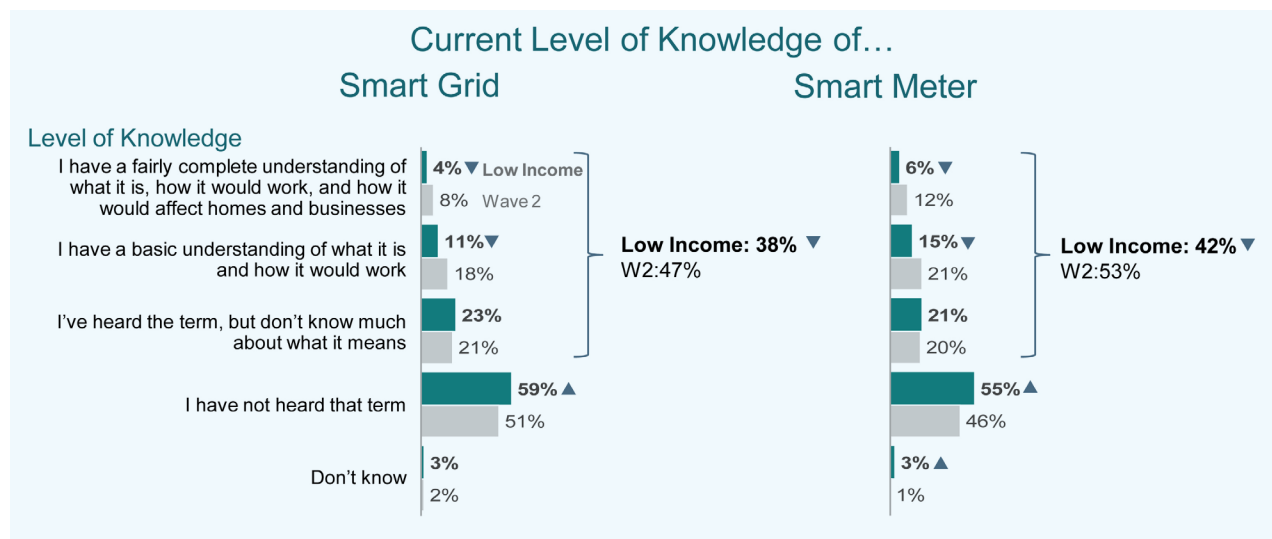
Target for TOU and CPR programs: The survey results indicate that low income consumers, like those of the general population, have strong interest in dynamic pricing programs. They appear to be a good target market for such programs, which can certainly benefit them to the extent that participants are offered opportunities to reduce energy costs.

Pay as you go: Low income consumers appear to be leery of “Pay As You Go” rate plans as described in this survey. While the potential to manage energy usage and control costs is appealing, many express concern that enrolling in such a program could make it more likely they would be shut off quickly due to late payment.

Smart Grid & Smart Meter Awareness

Lower Awareness of Smart Grid/Meters

About 4 in 10 low income consumers have awareness of smart grid and smart meters. Of those, 15% and 21% have a basic or complete understanding of smart grid and smart meters respectively. Their knowledge of what these concepts are, how they would work, and how they would affect their homes is significantly lower than the general population of U.S. consumers.



▲▼ indicate a significant increase or decrease between low income and general population

A1. Which of the following statements comes closest to describing your current level of knowledge about smart grid?

Base: Total Consumers, n= W2, 1,003; Low Income, 1,001

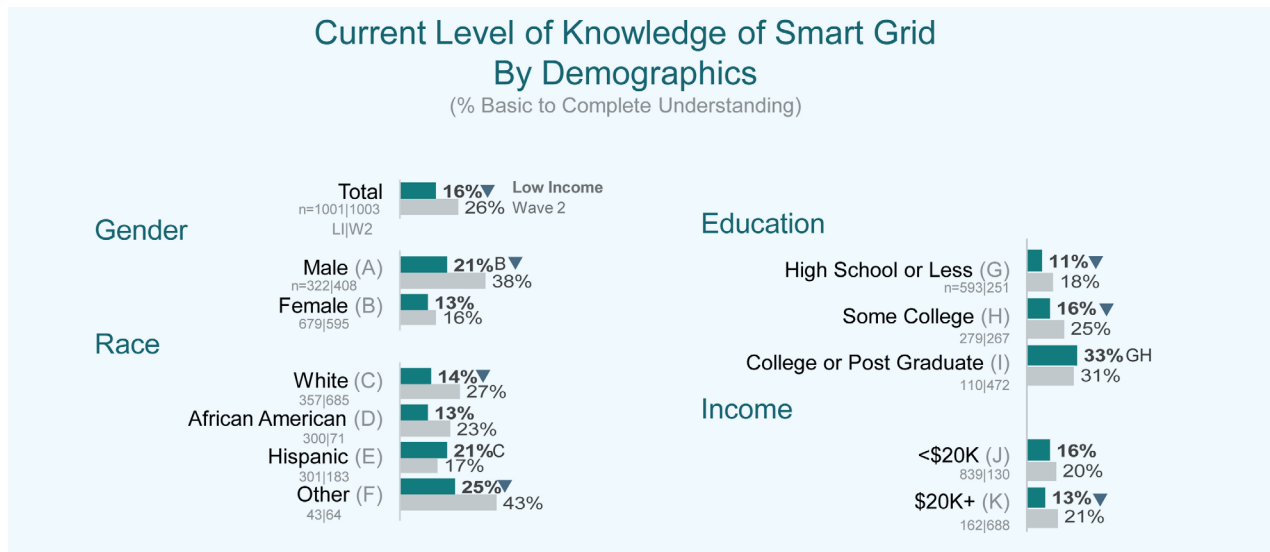
A2. Which of the following statements comes closest to describing your current level of knowledge about smart meter?

Base: Total Consumers, n= W2, 1,003; Low Income, 1,001

SPOTLIGHT ON LOW INCOME CONSUMERS, SEPTEMBER 2012

Knowledge of Smart Grid Varies by Demographics.

Awareness is especially low among low income females, whites, African Americans, and those with low education.

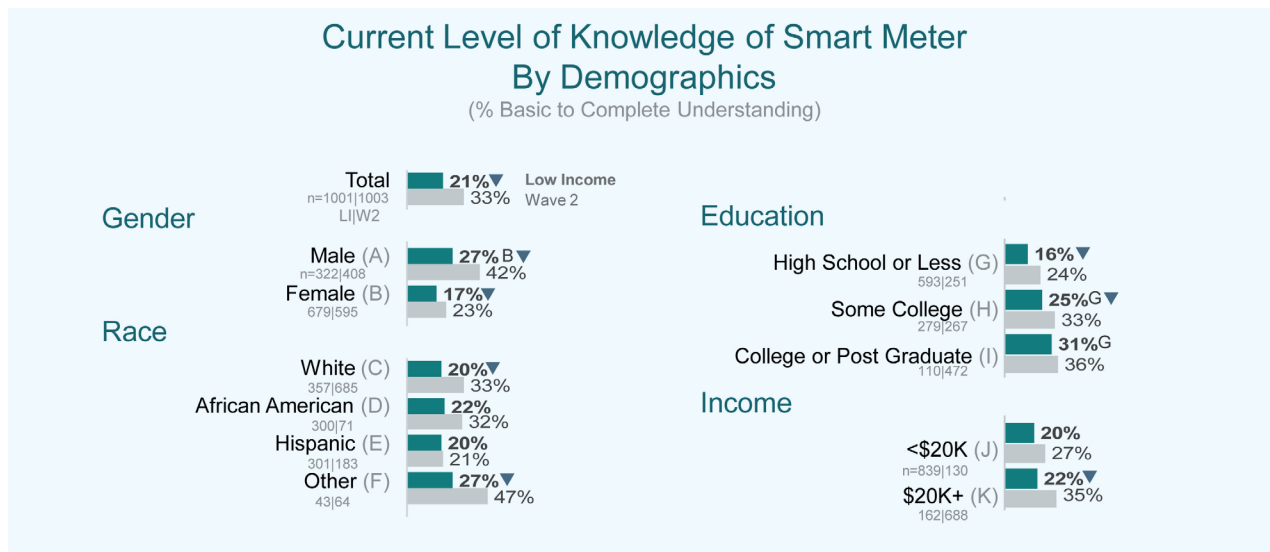


Base: Total Consumers

A–K indicate significant differences between segments

A1. Which of the following statements comes closest to describing your current level of knowledge about smart grid?

Knowledge of Smart Meters Also Varies by Demographics.



Base: Total Consumers

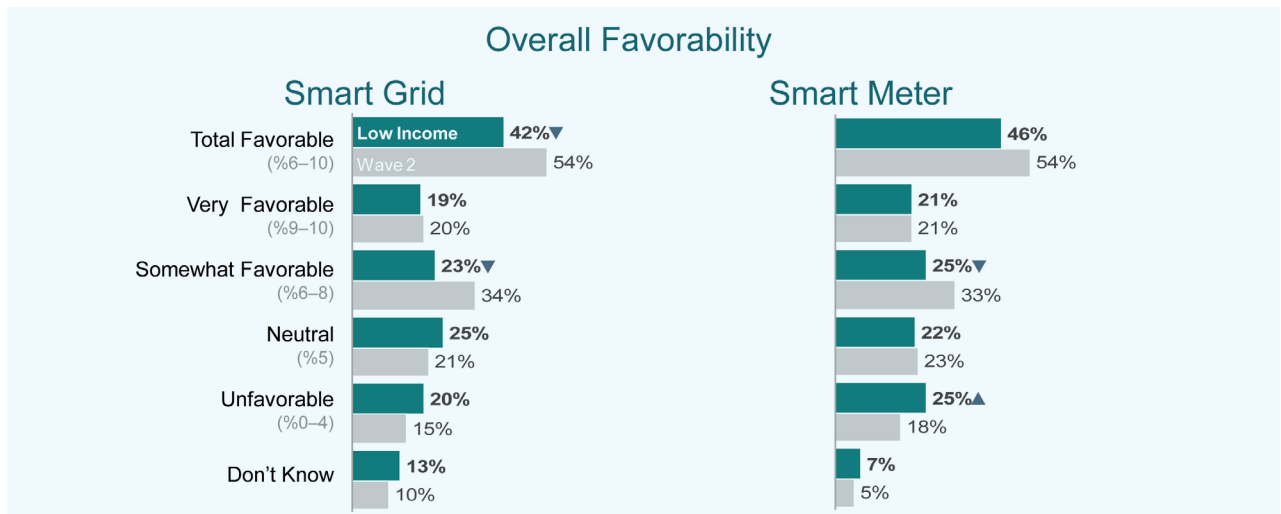
A–K indicate significant differences between segments

A2. Which of the following statements comes closest to describing your current level of knowledge about smart meter?

Smart Grid Favorability & Favorability Index

Less Favorable

Four in ten of those aware of smart grid/meters describe their general feelings as favorable; another 20%+ are neutral. Low income consumers are less favorable than the general population) due to significantly fewer “Somewhat Favorable” responses.



▲▼ indicate a significant increase or decrease between low income and general population indicate a significant increase or decrease between low income and general population

A4. Considering what you know about the smart grid, would you describe your general feelings about the smart grid as favorable or unfavorable?

Base: Among those who have heard of smart grid, n= W2, 452, Low Income, 371

A5. Considering what you know about smart meters, would you describe your general feelings about smart meters as favorable or unfavorable?

Base: Among those who have heard of smart meter, n= W2, 533, Low Income, 423

Smart Grid Favorability Index

The Smart Grid Favorability Index has been created to serve as a single metric that can be used to track the spread of smart grid awareness and favorability over time.

- The index provides a summary measure of:
 - Consumers' current level of knowledge about the smart grid
 - Consumers' favorability towards the smart grid

Favorability Also Varies by Demographic

The Favorability Index is lower among the low income population across demographics, with the exception of the Hispanic population.

		Awareness		Favorability*		Favorability Index	
		W2	Low Income	W2	Low Income	W2	Low Income
		47%	38%	54%	42%	25	16
Total Region	Northeast	47%	40%	53%	39%	25	16
	Midwest	47%	31%	50%	28%	24	9
	South	47%	40%	54%	43%	25	17
	West	47%	41%	60%	53%	28	22
Gender	Male	59%	48%	56%	44%	33	21
	Female	36%	33%	52%	40%	19	13
Ethnicity	White	48%	37%	52%	34%	25	13
	African American	46%	37%	66%	50%	30	19
	Hispanic	35%	38%	61%	64%	21	24
Age	18-24	53%	26%	75%	32%	40	8
	25-34	44%	42%	58%	28%	26	12
	35-44	44%	28%	63%	50%	28	14
	45-54	51%	49%	44%	38%	22	19
	55-64	49%	37%	44%	42%	22	16
	65+	45%	37%	57%	49%	26	18

* Among those who are aware.

Smart Grid & Smart Meter Benefits

Smart Grid/Smart Meter Benefits – Set Up

Participants were read the following instructions, then asked to react to seven benefit statements:

Now I'm going to give you some additional information about smart grid and smart meters, and then ask you some more questions.

Smart Grid refers to a set of new technologies to upgrade the grid that carries electricity to homes and businesses. **Smart Meters** are part of the smart grid system. They provide more information about how and when consumers are using electricity.

After reading a series of short statements about the potential benefits of smart grid and smart meters, I'll ask you to tell me how important each one is to you personally.

Benefit Statements:

- A smart grid senses problems and reroutes power automatically. This prevents some outages and reduces the length of those that do occur.
- Smart grid and smart meters help consumers save 5%–10% on their electricity bill by providing near real time energy usage information and the ability to manage electricity use.
- Smart grid reduces greenhouse gas emissions by making it easier to connect renewable energy sources to the electricity grid.
- A smart grid helps meet growing demand for electricity while limiting the need to invest in new power plants.
- Smart meters eliminate the need for meter reading — instead, usage information is transmitted directly to the utility for timely, accurate billing. There is never a need to send an estimated bill to the customer.
- A smart grid delivers the power “quality” necessary to run our increasingly digital homes — power with fewer sags, spikes, and interruptions.
- Smart grid and smart meters make it easier for utilities to offer new kinds of rate plans to help customers manage energy usage and cost.

After hearing each, they were asked to evaluate the level of importance of each statement using the following three-point scale:

1. You do not feel the potential benefit has any importance
2. It is important to you, but only if it can be provided to you at no additional cost
3. It is important enough to you that it would help justify a total extra cost of \$3–\$4 on your monthly electric bill to implement smart grid and smart meter improvements.

The following summarizes the benefits that received the highest importance ratings.

Smart Grid/Smart Meter Benefits

Low income customers focus on reliability.

Low Income Study:

Highest Total Importance: **Prevents some outages and reduces the length of others**

Highest “Important and Willing to Pay for”: **Prevents some outages and reduces the length of others**

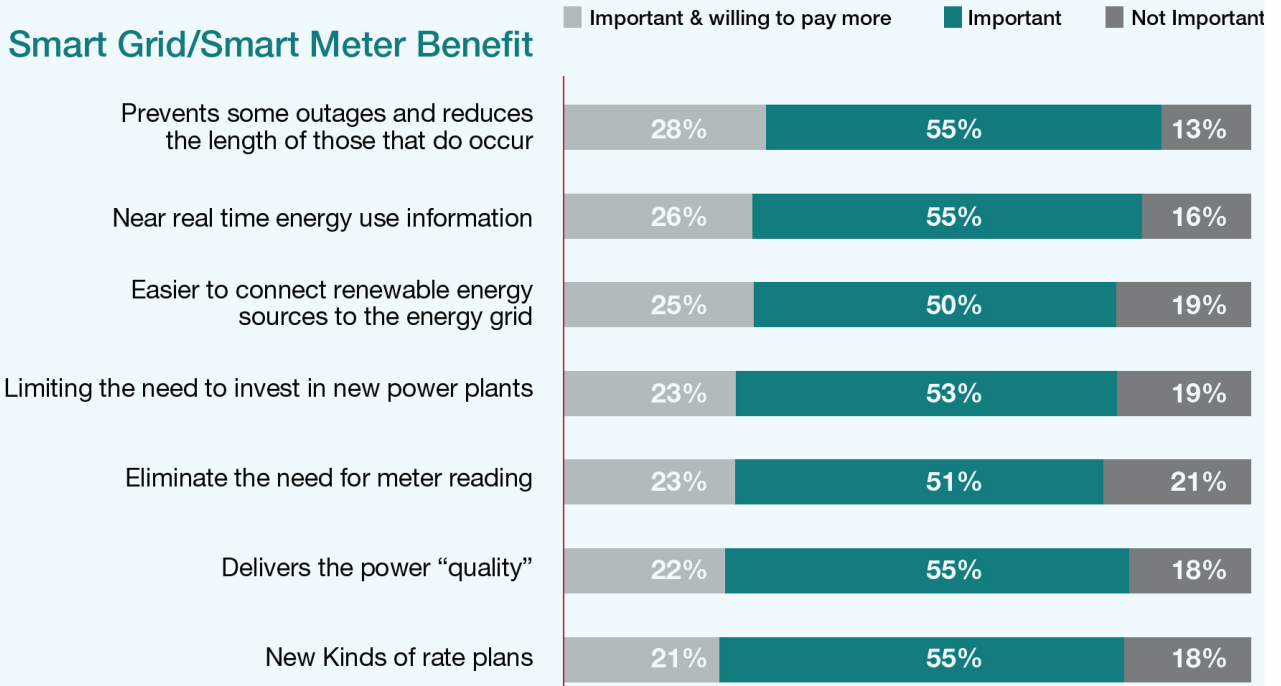
Wave 2 (General Population):

Highest Total Importance: **Prevents some outages and reduces the length of others**

Highest “Important and Willing to Pay for”: **Makes it easy to connect renewable energy sources**

B1–B7. I’m going to read a series of short statements about the potential benefits of smart grid and smart meters and ask you to tell me how important each one is to you personally. Please use a three-point scale, where 1 means you do not feel the potential benefit has any importance, 2 means it is important to you, but only if it can be provided to you at no additional cost, and 3 means it is important enough to you that it would help justify a total extra cost of \$3-\$4 on your monthly electric bill to implement smart grid and smart meter improvements.

Importance of Smart Grid/Meter Benefits Low Income Consumers

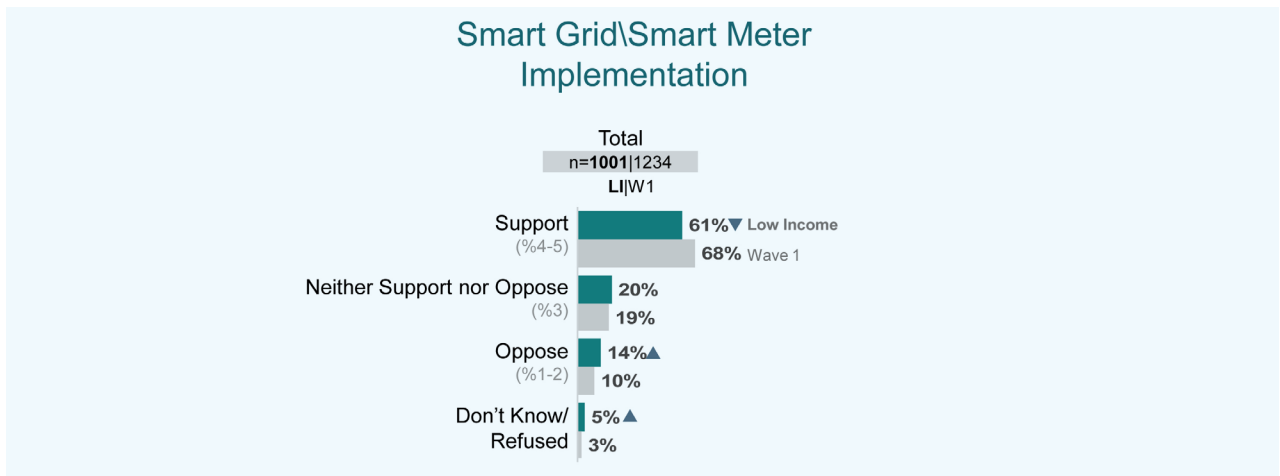


Base: Total Low income respondents n=1001

Support For Smart Grid Implementation

After hearing the smart grid/meter concepts and benefits, most low income consumers support their electric utility in starting now and working quickly to implement the technology.

Six in ten support their utility starting now to implement smart grid/smart meter technology, which represents significantly lower support than the general population.



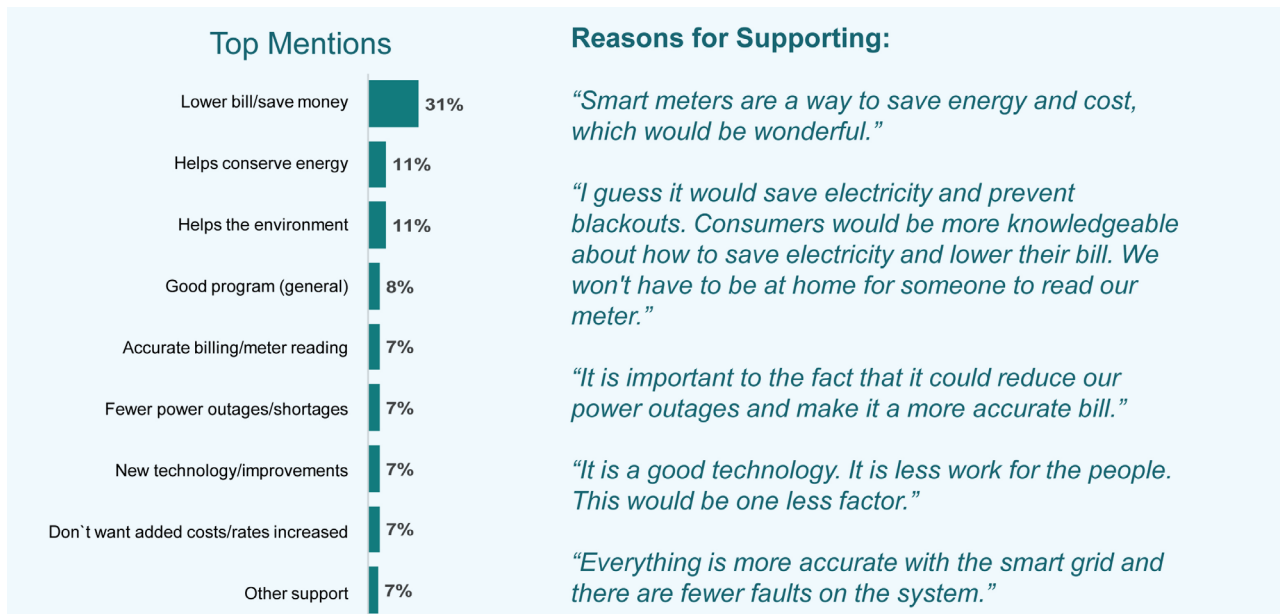
▲▼ indicate a significant increase or decrease between low income and general population

I1. Please tell me whether you support the idea that your electric utility should start now and work quickly to implement smart grid and smart metering technology.

SPOTLIGHT ON LOW INCOME CONSUMERS, SEPTEMBER 2012

Low Income Comments:

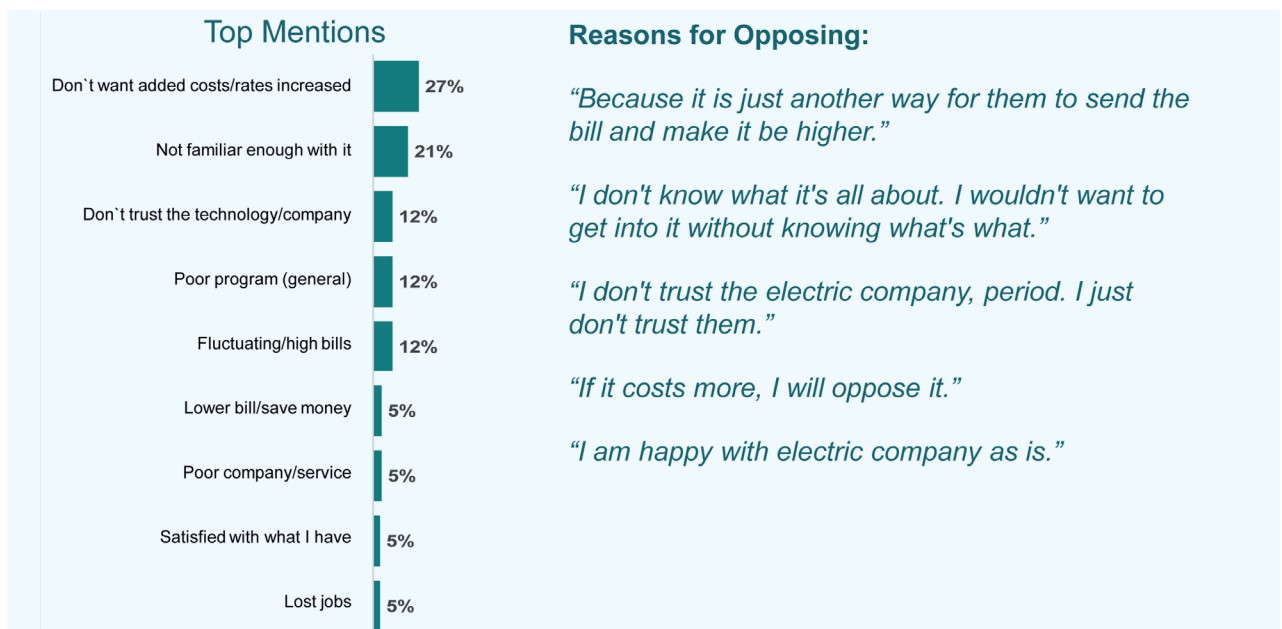
Reasons for Supporting Smart Grid/Smart Meter Implementation



Base: Consumers that support smart grid/smart meter implementation, n= 506

I2. Please explain why you support/do not support your electric utility starting now and working quickly to implement smart grid and smart metering technology. Please be as specific as you can.

Reasons for Opposing Smart Grid/Smart Meter Implementation



Base: Consumers that oppose smart grid/smart meter implementation, n= 100

I2. Please explain why you support/do not support your electric utility starting now and working quickly to implement smart grid and smart metering technology. Please be as specific as you can.

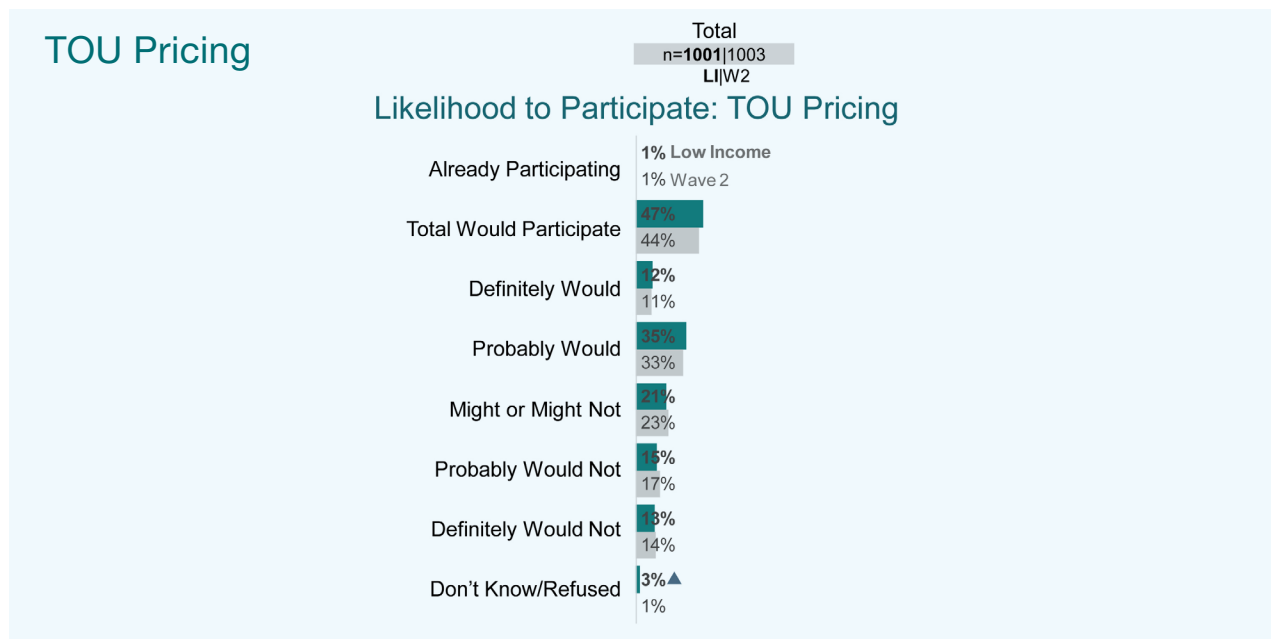
Smart Grid & Smart Meter Programs

Likelihood to Participate: TOU Pricing

Participants were read the following description of Time of Use Pricing and asked how likely they would be to participate in the program:

One program would be a rate plan that would charge different prices for electricity depending on when it is used. Rates would be lower when the demand for electricity is low — during off-peak periods such as weekends, holidays, and weekdays from 9 p.m. to noon. Rates would be higher during peak periods, when demand is higher. You would have the opportunity to save money by using electricity during off-peak periods.

The following summarizes the results.



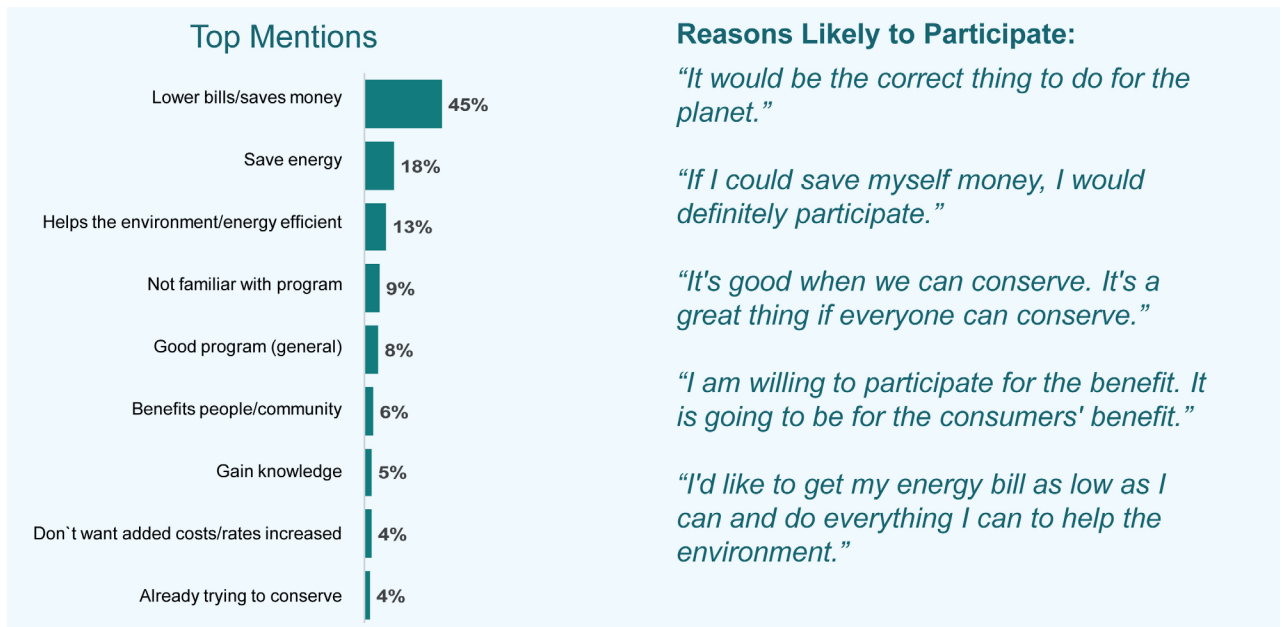
Base: Total Consumers

▲▼ indicate a significant increase or decrease between low income and general population

AP1. How likely you would be to participate in programs that you may be offered, that are based on smart grid technology...

Consumer Comments:

Reasons Would Participate in TOU Pricing Program



Base: Consumers that are likely to participate in Time of Use Pricing, n=434

AP1A. Please explain why you would/would not be likely to participate in this program. Please be as specific as you can.

Reasons Would Not Participate in TOU Pricing Program



Base: Consumers that are unlikely to participate in Time of Use Pricing, n=200

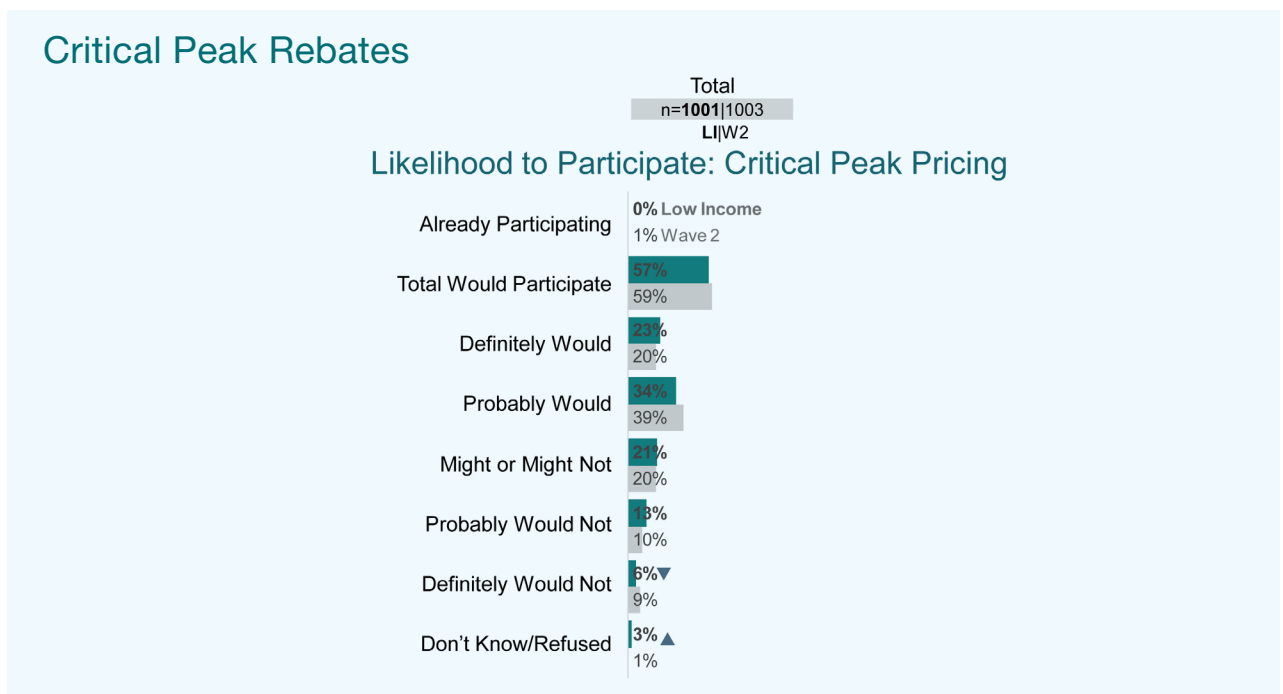
AP1A. Please explain why you would/would not be likely to participate in this program. Please be as specific as you can.

Likelihood to Participate: Critical Peak Rebates

Participants were read the following description of Critical Peak Pricing and asked how likely they would be to participate in the program:

One program would encourage people to reduce their energy use during peak periods when energy usage is expected to be high, such as on very hot days. At these “critical” times, people who are enrolled in the program would receive a notice asking them to save money by reducing their energy use. Notices would be sent by email, text, or phone. They would not be penalized for keeping their energy use the same. In addition to savings from lower energy use, those who reduced their energy usage would receive a rebate on their bill.

The following summarizes the results.



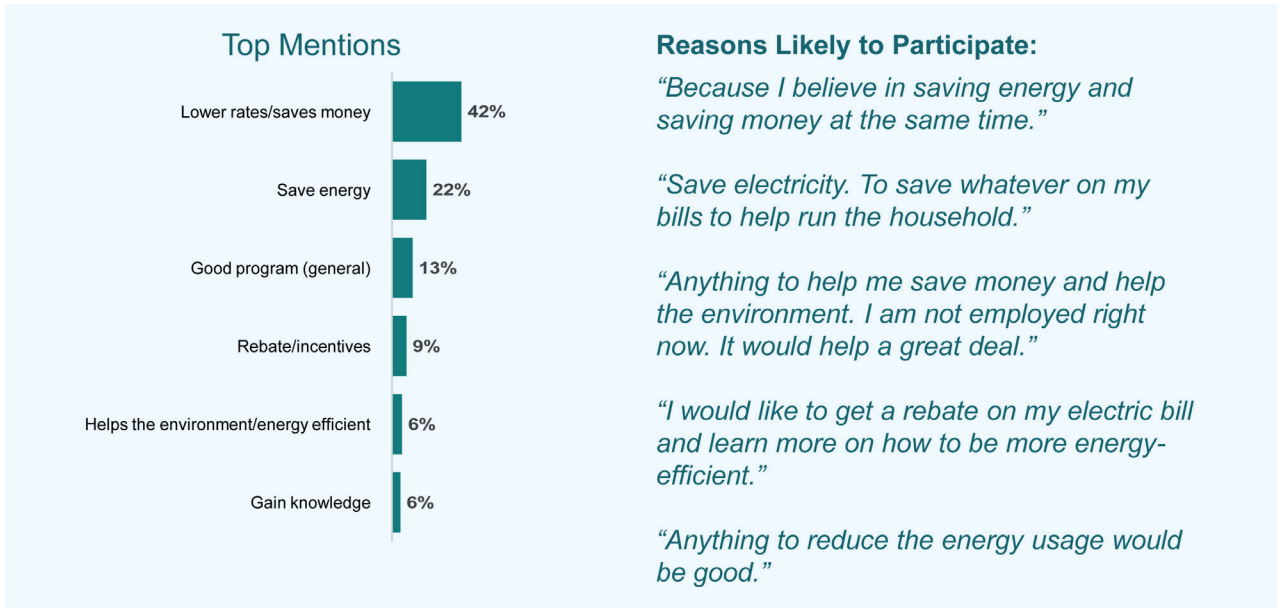
Base: Total Consumers

▲▼ indicate a significant increase or decrease between low income and general population

AP2. How likely you would be to participate in programs that you may be offered, that are based on smart grid technology...

Consumer Comments:

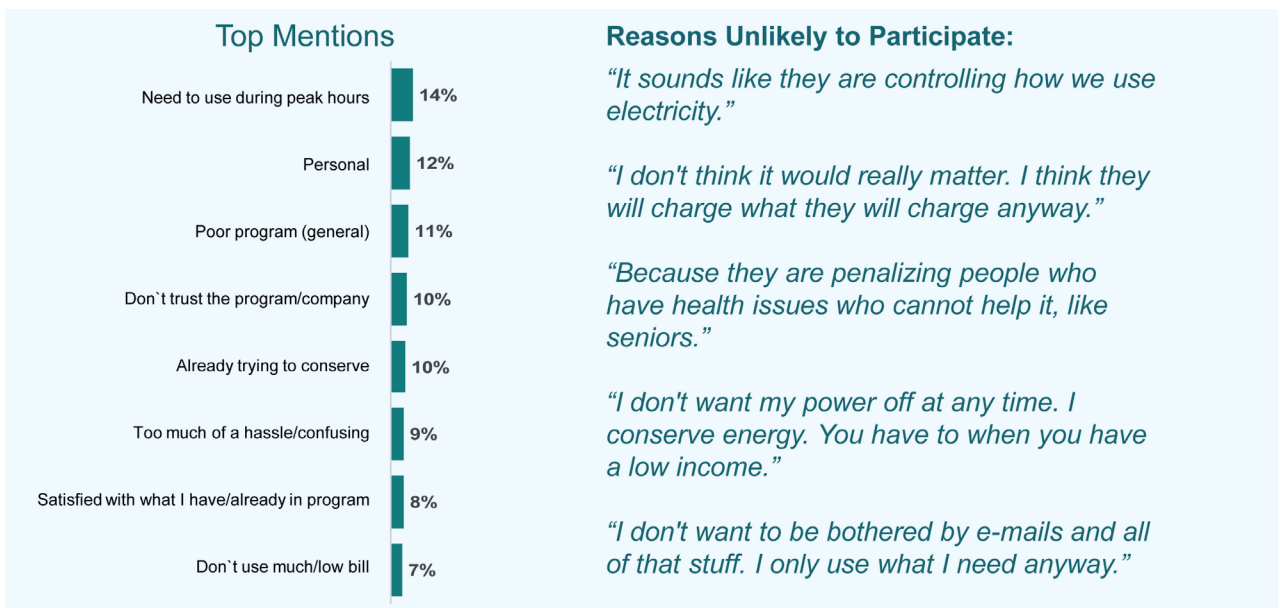
Reasons Would Participate in Critical Peak Rebates Program



Base: Consumers that are likely to participate in Critical Peak Pricing, n=502

AP2A. Please explain why you would/would not be likely to participate in this program. Please be as specific as you can.

Reasons Would Not Participate in Critical Peak Rebates Program



Base: Consumers that are unlikely to participate in Critical Peak Pricing, n=139

AP2A. Please explain why you would/would not be likely to participate in this program. Please be as specific as you can.

Likelihood to Participate: Pay As You Go

Participants were read the following description of Pay As You Go Pricing and asked how likely they would be to participate in the program:

One program would allow you to buy power when you want — in the amount you want. If you enrolled, you would pay for a specific amount of electricity to activate your account, then continue to pay as often as you like to keep your account balance above zero. When you sign up for this plan, there is no deposit required, and there would be numerous payment methods available that accept cash, checks and credit or debit cards. If your account balance dropped to zero, the electricity would shut off automatically, and it could be restored immediately by adding money to the account. So far, studies indicate that people who enroll in this type of program end up saving money on their electricity bills, because they are more attentive to how much they are using.

The following summarizes the results.

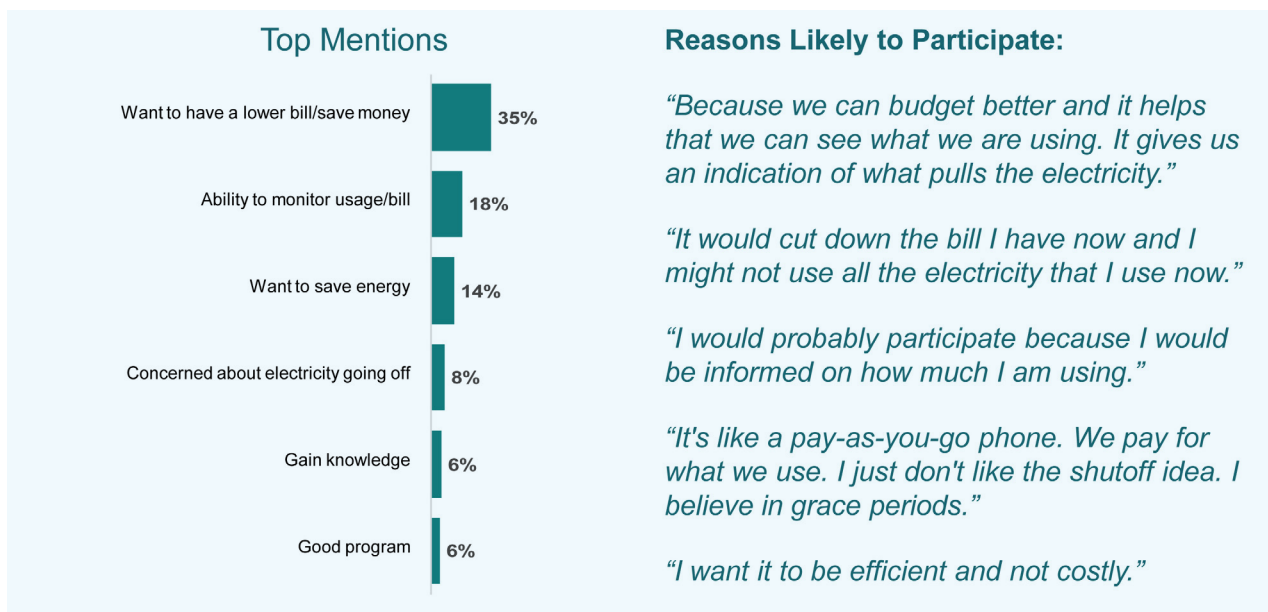


Base: Total Consumers

AP3. How likely you would be to participate in programs that you may be offered, that are based on smart grid technology...

Consumer Comments:

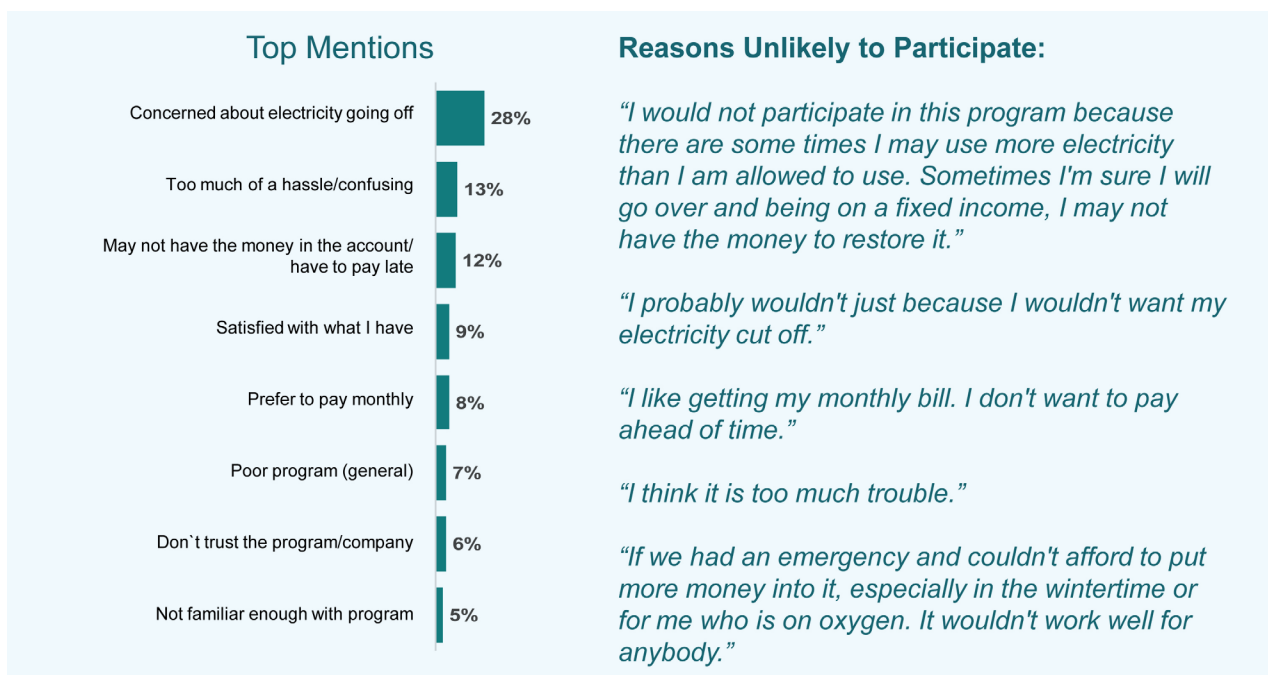
Reasons Would Participate in Pay As You Go Program



Base: Consumers that are likely to participate in Pay As You Go Pricing, n=256

AP4. Please explain why you would/would not be likely to participate in this program. Please be as specific as you can.

Reasons Would Not Participate in Pay As You Go Program

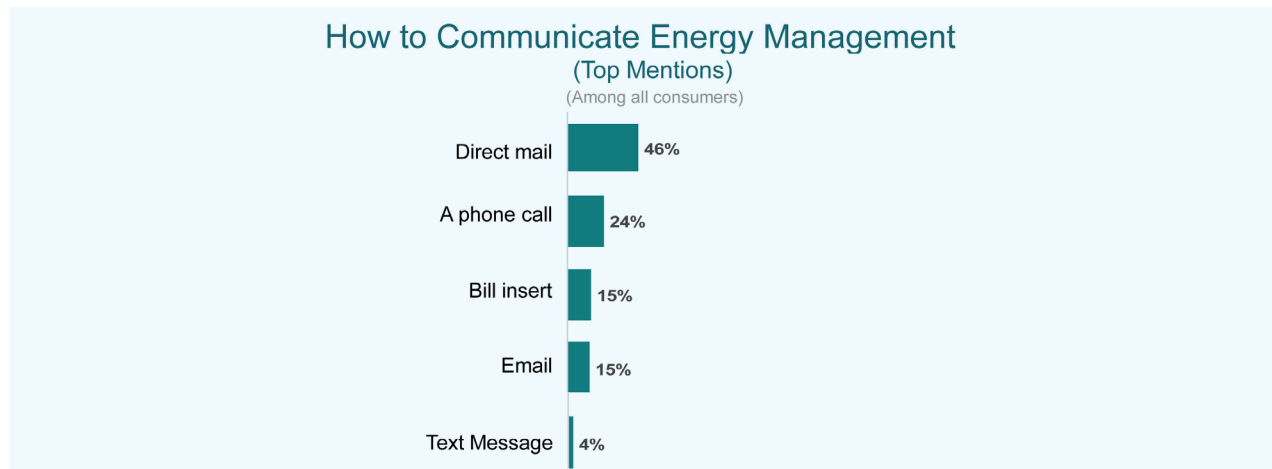


Base: Consumers that are unlikely to participate in Pay As You Go Pricing, n=396

AP4. Please explain why you would/would not be likely to participate in this program. Please be as specific as you can.

Communication Preferences

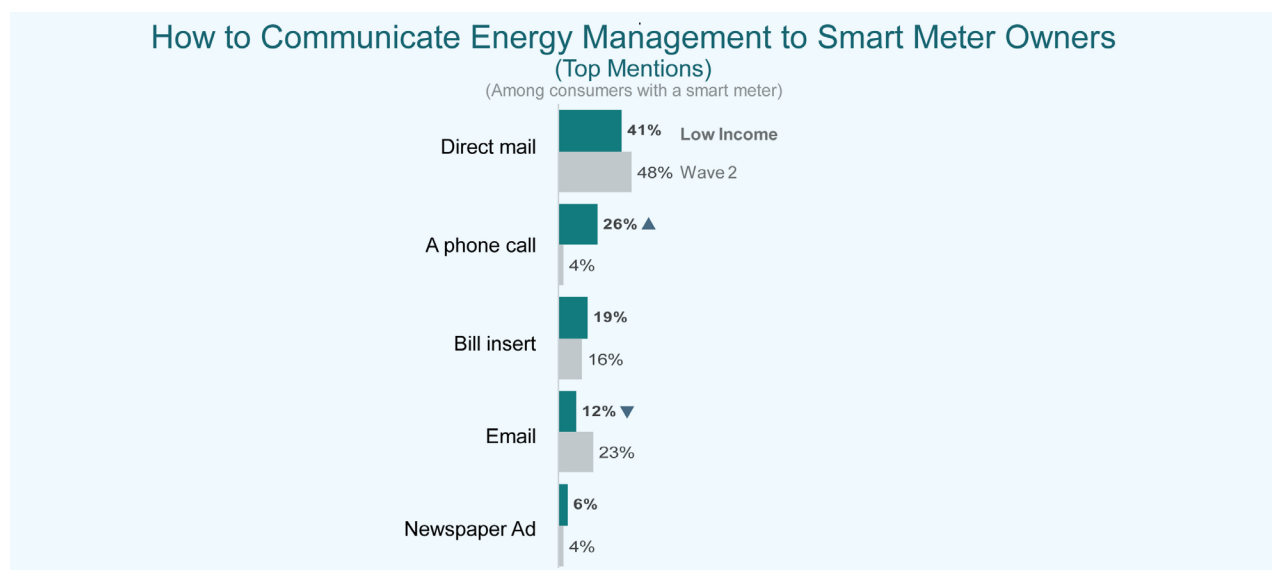
Direct mail is low income consumers' favored means of receiving communications about energy management from utilities.



Base: Total low income respondents n=1001

CT1. How would you prefer your utility to provide you with information explaining ways your smart meter can help you manage your energy?

Among those who currently have a smart meter, direct mail or a phone call (which is not widely favored by the general population) are the preferred communications methods.



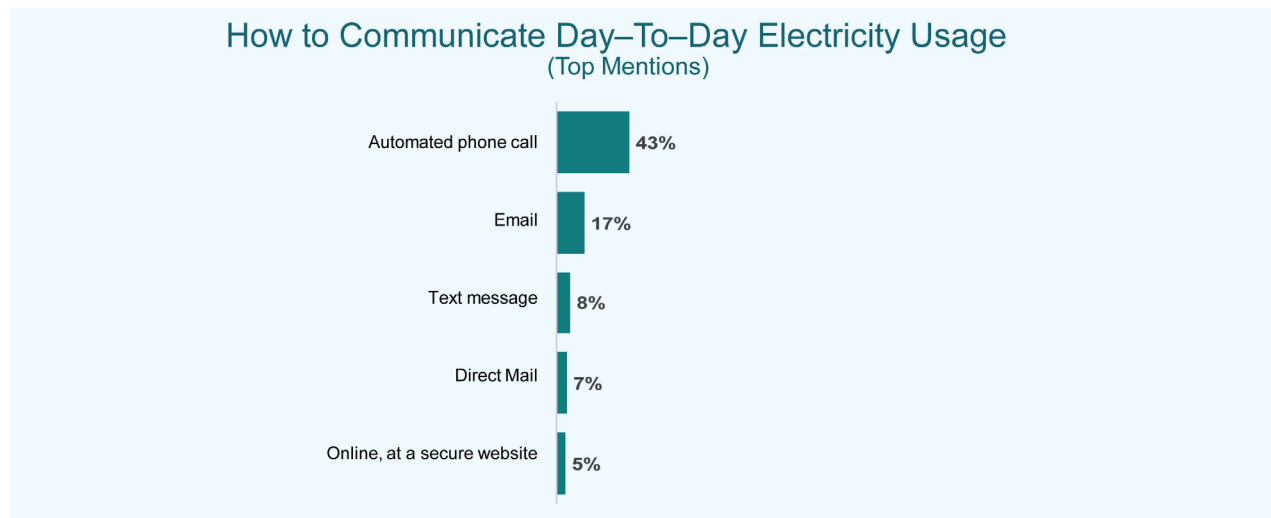
▲▼ indicate a significant increase or decrease between low income and general population

Base: Have a smart meter. Low income respondents n=290; Wave 2 n=174

CT1. How would you prefer your utility to provide you with information explaining ways your smart meter can help you manage your energy?

SPOTLIGHT ON LOW INCOME CONSUMERS, SEPTEMBER 2012

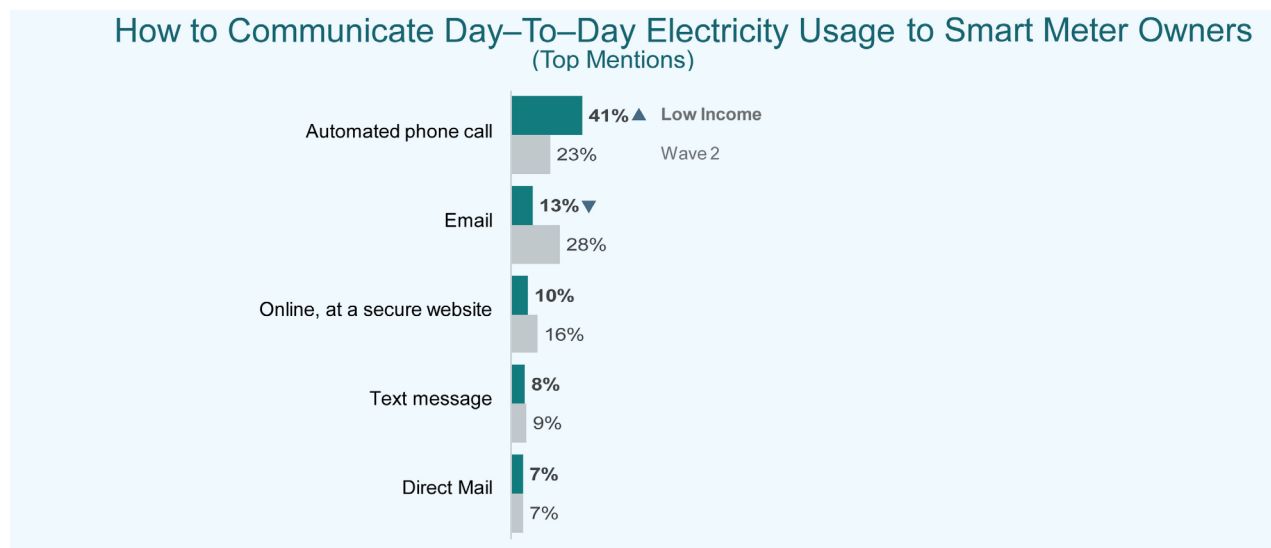
An automated phone call is many low income consumers' preferred communication method for day-to-day usage information.



Base: Total low income respondents n=1001

CT2A. How would you prefer your utility to communicate your day-to-day electricity usage information?

Among those with a smart meter, an automated phone call is preferred, significantly more so than by the general population.



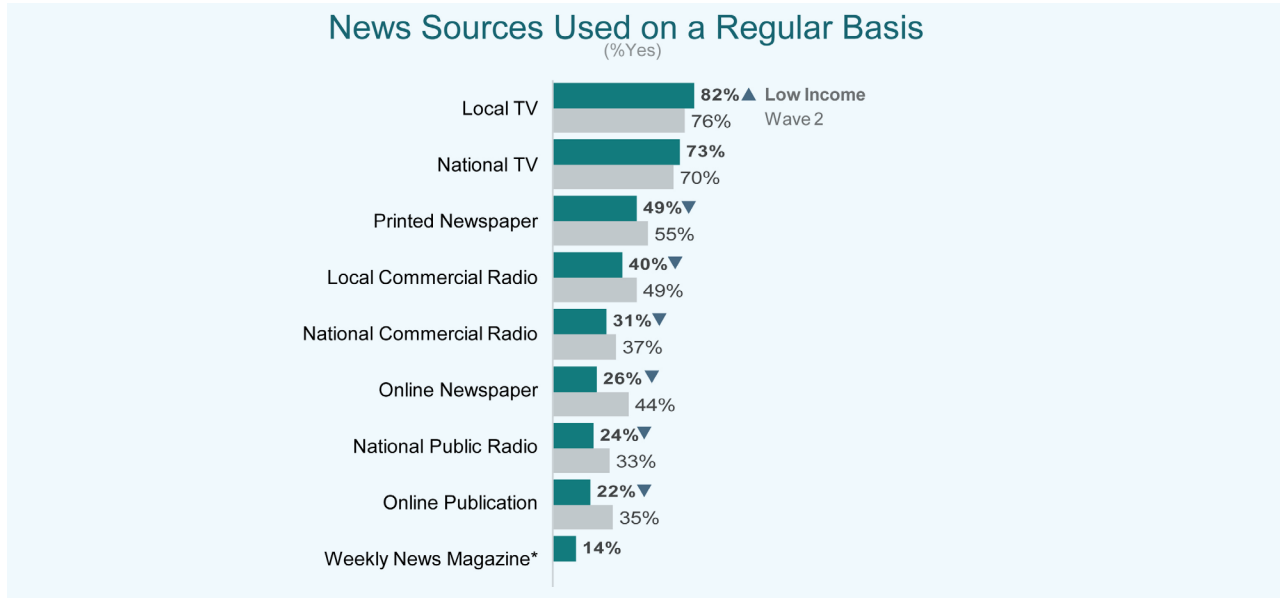
▲▼ indicate a significant increase or decrease between low income and general population

Base: Have a smart meter. Low income respondents n=290; Wave 2 n=174

CT2A. How would you prefer your utility to communicate your day-to-day electricity usage information?

Media Channels

TV is the most popular way of keeping up with the news, while other media are used less than by the general population.



Base: Total Low income respondents n=1001; Wave 2 n=1003

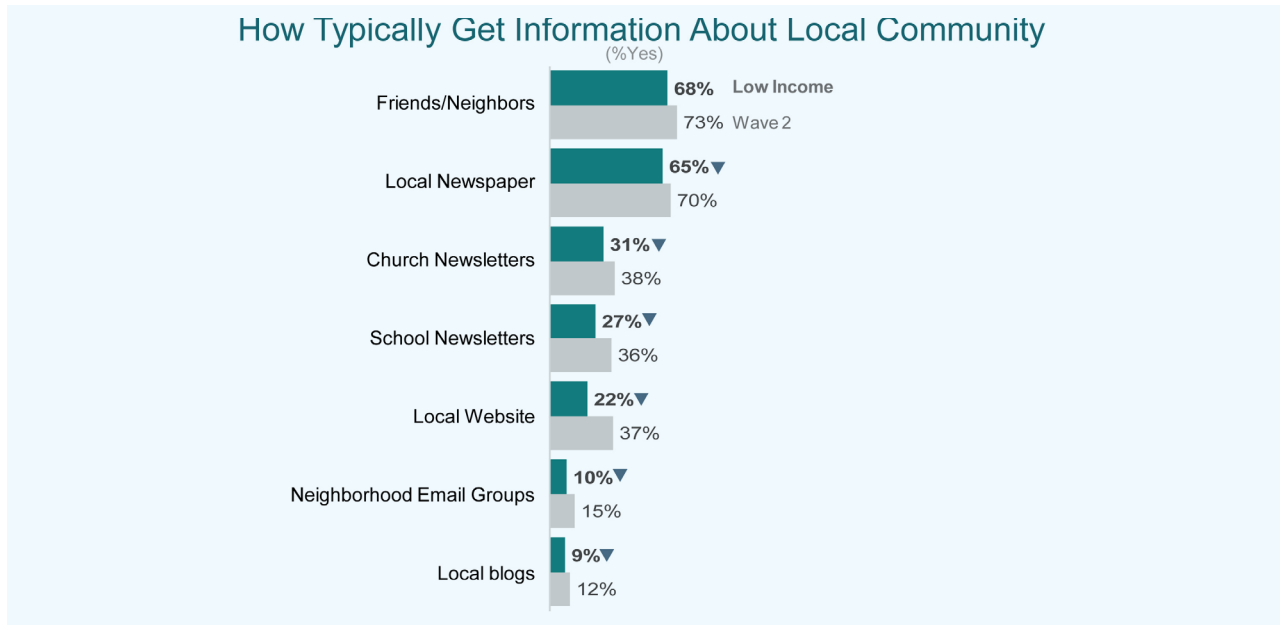
▲▼ indicate a significant increase or decrease between low income and general population

*Question was not asked in previous waves.

MU1A–MU1H. Please tell me how you keep up with the news

SPOTLIGHT ON LOW INCOME CONSUMERS, SEPTEMBER 2012

Friends/neighbors and the local newspaper are the most common sources for local information.

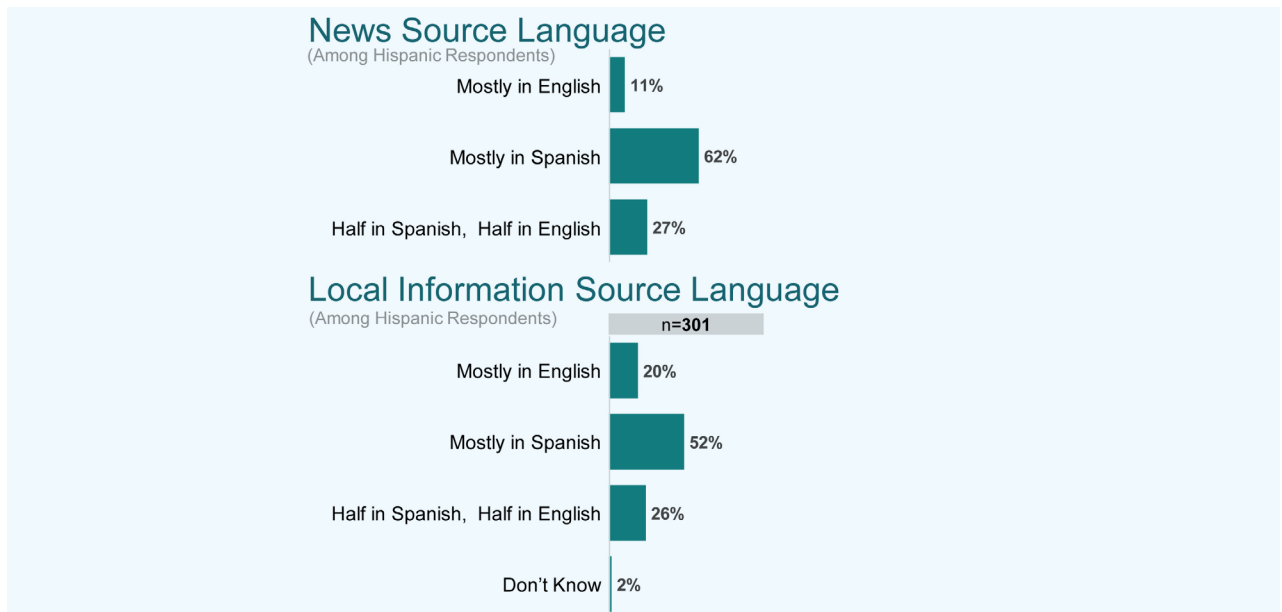


Base: Total Low income respondents n=1001; Wave 2 n=1003

▲▼ indicate a significant increase or decrease between low income and general population

MU2A–MU2G. Please tell me how you typically get information about what is going on in your local community

The majority of low income Hispanic respondents say they access news and information mostly in Spanish.*



Base: Total Hispanics n=278

MU1X. Would you say that the news sources you use are...

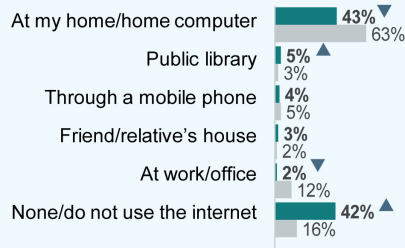
MU2X. Would you say that the local information sources you use are...

* 221 of 301 low income Hispanic respondents completed the survey in Spanish.

Internet Access and Electronic Devices

Internet use and/or access is lower among low income consumers than the general population. Four in ten low income consumers do not use the internet.

Most Frequently Access Internet



▲▼ indicate a significant increase or decrease between low income and general population

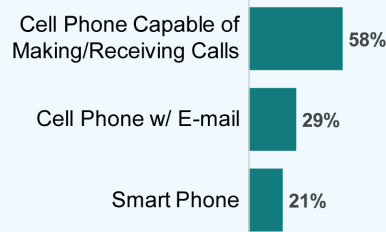
Base: Total Low income respondents, n=1001, Wave 2 n=1003

D1. Where do you most frequently access the internet?

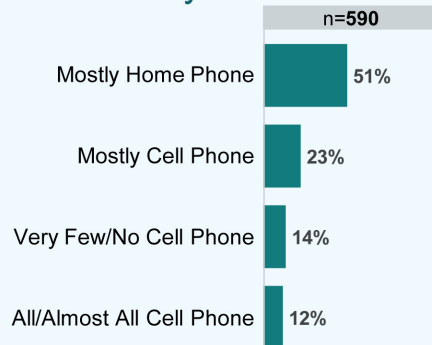
**Code added for Low Income.

Many low income consumers have mobile devices.

Devices Owned (%Yes)



How Your Family Receives Phone Calls



Base: Total respondents, Low income n=1001

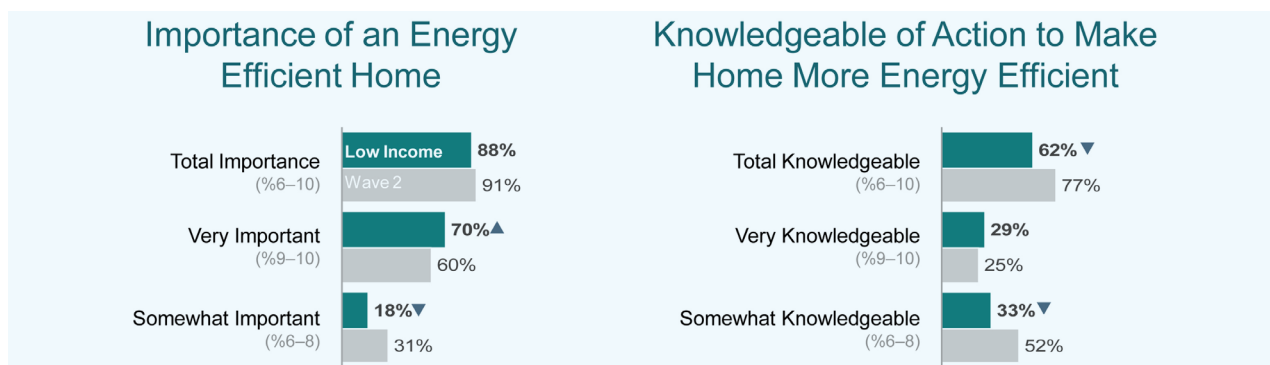
MD1-MD3. Please tell me whether you have each of the following types of devices...

Base: Low income consumers with a cell phone, cell phone with email access, or smart phone.

CALLS. Of all the telephone calls you or your family receives, are...

Energy Efficiency & Environmental Attitudes

Most consumers find energy efficiency important, but those with low income are less knowledgeable about the actions they can take.



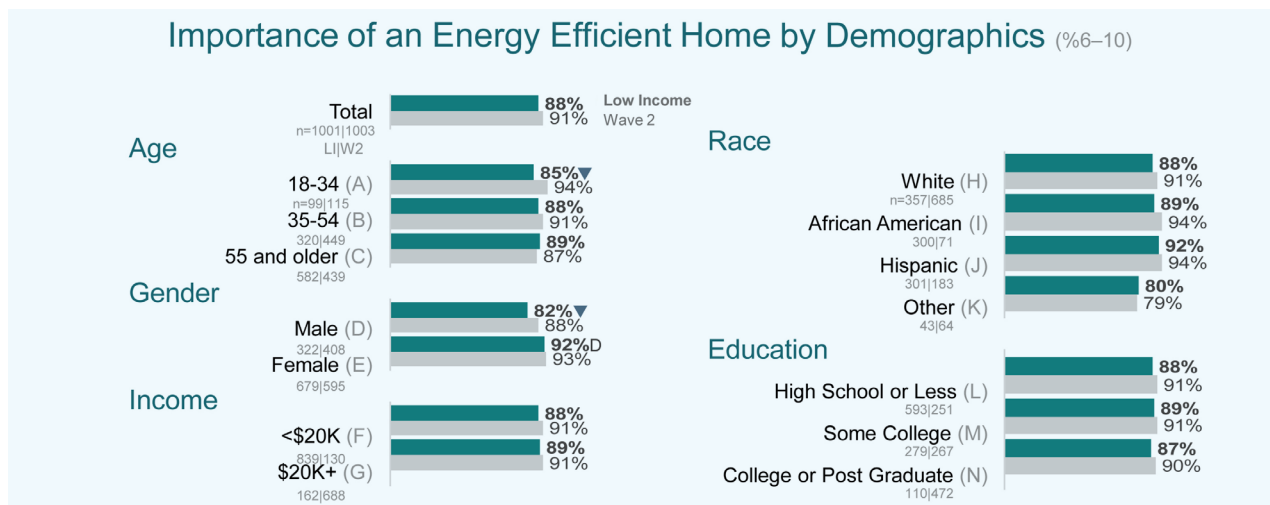
▲▼ indicate a significant increase or decrease between low income and general population

n= W2, 1,003; Low Income, 1,001

EU1. How important is it to you, personally, to know that your home is energy efficient and that you have done all that you can to lower your energy costs?

KN1. How knowledgeable do you feel you are about actions you can take to make your home more energy efficient?

Importance of efficiency varies relatively little by demographics within the low income sector.



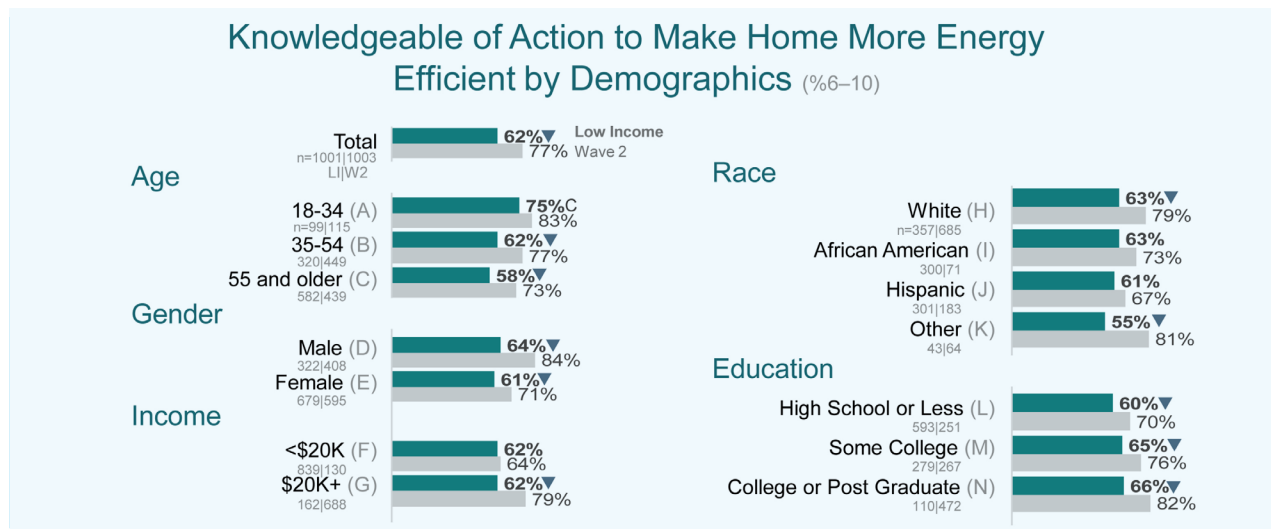
A-N indicate significant differences between segments

▲▼ indicate a significant increase or decrease between current and previous wave

EU1. How important is it to you, personally, to know that your home is energy efficient and that you have done all that you can to lower your energy costs?

SPOTLIGHT ON LOW INCOME CONSUMERS, SEPTEMBER 2012

Self-reported energy efficiency knowledge does vary by demographics.



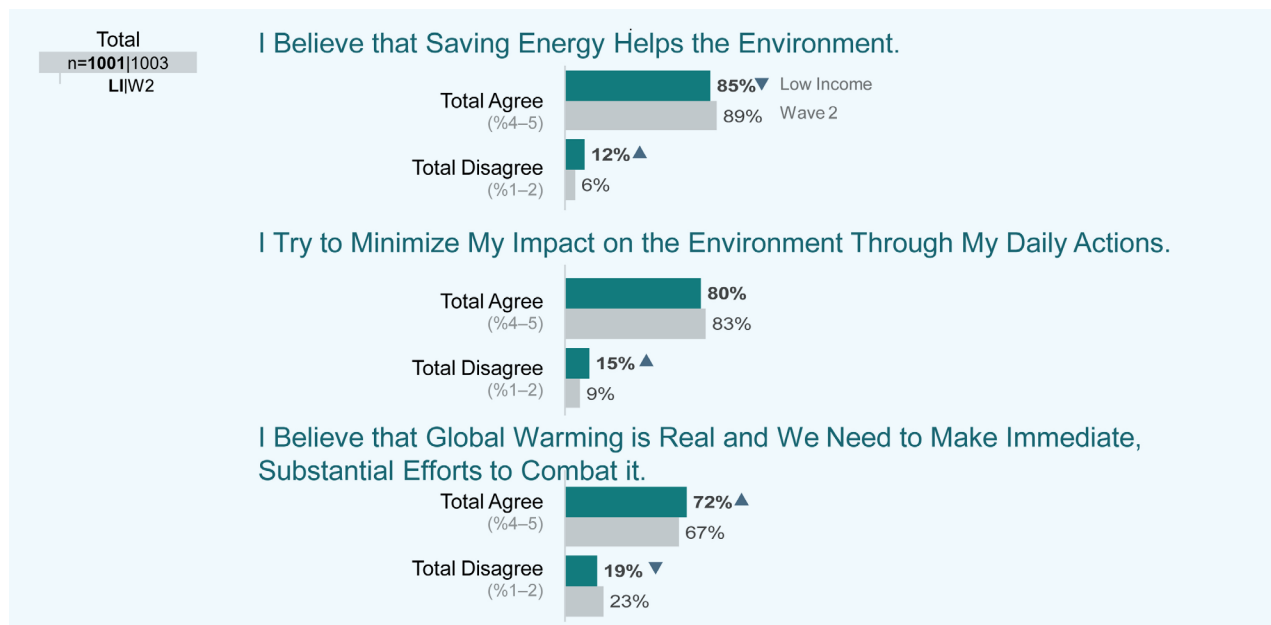
A-N indicate significant differences between segments

▲▼ indicate a significant increase or decrease between current and previous wave

KN1. How knowledgeable do you feel you are about actions you can take to make your home more energy efficient?

There is a narrow gap in consumers' environmental attitudes and behaviors.

While there are some statistically significant differences, low income consumers' environmental attitudes align fairly closely with those of the general population.



▲▼ indicate a significant increase or decrease between low income and general population

EN5, EN3, EN4. Please tell me whether you agree or disagree with each of the following statements.

Demographics

Age			Customer Type			Most Frequent Access Internet		
	W2	LI		W2	LI		W2	LI
18-24	6%	4%	Electric	45%	60%	At my home/home computer	63%	43%
25-34	19%	15%	Combo	55%	40%	Public library	3%	5%
35-44	19%	12%	Home Ownership			Through a mobile phone	5%	4%
45-54	21%	16%	Own/buying	77%	55%	Friend/relative's house	2%	3%
55-64	17%	18%	Rent	22%	44%	At work/office	12%	2%
65 or older	18%	35%	Type of Home			None/do not use the internet	16%	42%
Race			A detached single family home	71%	45%	Internet Access at Home		
White	68%	54%	An apartment	12%	26%	Yes	72%	54%
African-American	11%	22%	Mobile or manufactured home	6%	18%	Type of Home Internet Access (among those with internet access at home)		
Hispanic	14%	15%	A townhouse/duplex/row house	6%	9%	High speed	93%	74%
Other	7%	9%	A condominium	3%	0%	Dial-up	5%	15%
Gender			Other	3%	2%	Don't Know/Refused	2%	11%
Male	47%	36%	Has Smart Meter Installed in Home			# People in Home		
Female	53%	64%	% Yes	17%	24%	1	15%	33%
Political Affiliation			Average Electric Bill			2	29%	23%
Democrat	33%	48%	Less than \$50	10%	13%	3	20%	16%
Republican	24%	13%	\$50 to \$100	36%	35%	4	18%	11%
Independent	31%	23%	\$101 to \$200	33%	31%	5 or more	16%	17%
Other	1%	1%	\$201 to \$300	9%	8%	# of people under 18 in HH		
None	4%	8%	\$301 to \$400	2%	2%	No children under 18	48%	43%
Income			\$401 to \$500	1%	1%	1 child	17%	24%
Up to \$20,000	12%	83%	More than \$500	1%	1%	2 children	24%	17%
\$20,000-\$30,000	11%	15%	Included in rent	0%	4%	3 or more	12%	16%
\$30,000-\$40,000	10%	2%	Region			Someone Typically Home During the Day		
\$40,000+	48%	--	Northeast	18%	16%	% Yes	71%	82%
Education			Midwest	22%	22%			
High School or Less	23%	53%	South	36%	44%			
Some College	28%	33%	West	24%	18%			
College or Post Graduate	49%	13%						
Employment Status								
Employed full-time	49%	16%						
Employed part-time	8%	11%						
Unemployed	5%	12%						
Retired	23%	36%						
Homemaker	7%	9%						
Temporarily laid off	1%	1%						
Student	4%	1%						
Other	3%	14%						

Base varies by question

*Need more information?
Please contact:*

Patty Durand
SGCC Executive Director
678-467-0148
Patty.Durand@SmartGridCC.org



SGCC is a consumer-focused nonprofit organization formed to promote an understanding of the benefits of modernized electrical systems among all stakeholders in the United States. Membership is open to all consumer and environmental advocates, technology vendors, research scientists and electric utilities for sharing in research, best practices and collaborative efforts of the group. Learn more at smartgridcc.org.

**Louisville Gas and Electric Company and Kentucky Utilities Company
Response to CAC's Initial Requests for Information
Dated April 2, 2018**

Case No. 2018-00005

Question No. 12

Witness: John P. Malloy

Q-12.

- a. Please provide a specific list of ways the companies anticipate customers will adjust energy consumption habits and behaviors in order to reduce their energy bills after deployment of AMS.
- b. Please provide estimates (or ranges) of potential energy savings that you anticipate from each of the specific adjustments described above.

A-12.

- a. The Companies do not have an exhaustive list. Examples that participants in the AMS Opt-In program have reported can be found in Exhibit JPM-1, Appendix A-1, pages 31-35.
- b. The Companies do not have estimates of potential energy savings by adjustment available.

**Louisville Gas and Electric Company and Kentucky Utilities Company
Response to CAC's Initial Requests for Information
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Case No. 2018-00005

Question No. 13

Witness: John P. Malloy

- Q-13. Please provide any data relied upon or in the possession of the companies from other markets that have implemented advanced metering, that shows how AMS adoption affects the number and/or frequency of service disconnections per household?
- A-13. The Companies do not have data that shows patterns of disconnection for utilities that have implemented AMS.

**Louisville Gas and Electric Company and Kentucky Utilities Company
Response to CAC's Initial Requests for Information
Dated April 2, 2018**

Case No. 2018-00005

Question No. 14

Witness: John P. Malloy

- Q-14. Please provide any data, relied upon or in the possession of the companies from other markets that have implemented advanced metering, that shows how AMS adoption affects the number and/or frequency of service disconnections for customers who participate in income based energy assistance programs.
- A-14. The Companies do not have data that shows patterns of disconnection for utilities that have implemented AMS.

**Louisville Gas and Electric Company and Kentucky Utilities Company
Response to CAC's Initial Requests for Information
Dated April 2, 2018**

Case No. 2018-00005

Question No. 15

Witness: John P. Malloy

- Q15. Do the companies intend to offer assistance to customers with low income to offset the cost of opt-out fees and monthly charges, so that these customers will not face a barrier to freely choosing their meter type?
- A-15. The Companies will provide information and education to customers to demonstrate that AMS represents the least cost option for all customers. In the event the Companies' efforts are unsuccessful and the customer wishes to opt-out of AMS prior to deployment in their area then the Companies will waive the one-time setup fee for the customer. After deployment is complete then customers will be expected to pay the cost-based fees associated with offering non-AMS meters.

**Louisville Gas and Electric Company and Kentucky Utilities Company
Response to CAC's Initial Requests for Information
Dated April 2, 2018**

Case No. 2018-00005

Question No. 16

Witness: John P. Malloy

- Q-16. Please detail any plans the companies have to provide information and education about AMS and energy efficiency specifically to landlords of multifamily homes.
- A-16. See response to PSC 1-26a. The Companies will provide targeted educational programs for all types of customers. This includes but is not limited to landlords, renters and multi-family homes.