

Building Consumer Acceptance to Maximize the Value of Grid Modernization

FINAL REPORT | MAY 31, 2014



Building Consumer Acceptance to Maximize the Value of Grid Modernization

FINAL REPORT | MAY 31, 2014

Prepared by

Tracy Warren
Cooperative Research Network

Assisted by

Tom Lovas
Cooperative Research Network

National Rural Electric Cooperative Association
4301 Wilson Boulevard
Arlington, Virginia 22203-1860

for

U.S. DOE/NETL
Morgantown Campus
3610 Collins Ferry Road
PO Box 880
Morgantown WV 26507-0880

The National Rural Electric Cooperative Association

NRECA is the national service organization for more than 900 not-for-profit rural electric cooperatives and public power districts providing retail electric service to more than 42 million consumers in 47 states and whose retail sales account for approximately 12 percent of total electricity sales in the United States.

NRECA's members include consumer-owned local distribution systems — the vast majority — and 66 generation and transmission (G&T) cooperatives that supply wholesale power to their distribution cooperative owner-members. Distribution and G&T cooperatives share an obligation to serve their members by providing safe, reliable and affordable electric service.

About CRN

NRECA's Cooperative Research Network™ (CRN) manages an extensive network of organizations and partners in order to conduct collaborative research for electric cooperatives. CRN is a catalyst for innovative and practical technology solutions for emerging industry issues by leading and facilitating collaborative research with co-ops, industry, universities, labs, and federal agencies.

CRN fosters and communicates technical advances and business improvements to help electric cooperatives control costs, increase productivity, and enhance service to their consumer-members. CRN products, services and technology surveillance address strategic issues in the areas:

- Cyber Security
- Consumer Energy Solutions
- Generation & Environment
- Grid Analytics
- Next Generation Networks
- Renewables
- Resiliency
- Smart Grid

CRN research is directed by member advisors drawn from the more than 900 private, not-for-profit, consumer-owned cooperatives who are members of NRECA.

Contact Information

National Rural Electric Cooperative Association
Cooperative Research Network™
4301 Wilson Boulevard
Arlington, VA 22203-1860
703.907.5500

Table of Contents

	Page
Foreword	ii
Introduction	1
The Risks	1
The Benefits of Communicating with Members about Smart Grid Improvements	4
Conclusion	5
Appendices	A-1

FOREWORD

The National Rural Electric Cooperative Association (NRECA) has organized the NRECA-U.S. Department of Energy (DOE) Smart Grid Demonstration Project (DE-OE0000222) to install and study a broad range of advanced Smart Grid technologies in a demonstration that involved 23 electric cooperatives in 12 states. For purposes of evaluation, the technologies deployed have been classified into three major sub-classes, each consisting of four technology types.

Enabling Technologies:	Advanced Metering Infrastructure Meter Data Management Systems Telecommunications Supervisory Control and Data Acquisition
Demand Response:	In-Home Displays & Web Portals Demand Response Over AMI Prepaid Metering Interactive Thermal Storage
Distribution Automation:	Renewables Integration Smart Feeder Switching Advanced Volt/VAR Control Conservation Voltage Reduction

To demonstrate the value of implementing the Smart Grid, NRECA has prepared a series of single-topic studies to evaluate the merits of project activities. The study designs have been developed jointly by NRECA and DOE. This document is the final report on one of those topics.

DISCLAIMER

The views as expressed in this publication do not necessarily reflect the views of the U.S. Department of Energy or the United States Government.

INTRODUCTION

Cooperatives that deployed consumer-facing technologies, including Advanced Metering Infrastructure (AMI) meters, as part of the Cooperative Research Network’s Smart Grid Demonstration Project (SGDP) have discovered that these technologies not only can change the relationship between the utility and the end-use consumer, but also that this relationship must be changed to extract the full value of the smart grid. While much of the research on the smart grid has focused on the transformation of the nation’s electric system from an electro-mechanical to a digital system, the co-op experience in the SGDP has revealed the importance of the human side of the equation. Maximizing the benefit of these smart grid technologies—demand response, time-of-use rates, peak pricing, and prepay and energy management tools—for both the utility and the consumer requires new kinds of engagement and communication with the latter. This report examines the difficulties and benefits of forging a new relationship with consumers to ensure the full value available from smart grid innovations.

Traditionally, electric utilities have operated solely as commodity suppliers to their consumers. Smart grid technologies, with some assistance from deregulation, are forcing utilities to re-evaluate that model. In some regions, new organizations—an energy efficiency cooperative in Vermont, for example—are aggregating demand response to sell into the market. Renewable energy providers are marketing solar and wind energy directly to members. By shunning smart grid technologies, utilities risk losing out to other businesses that can offer smart grid-enabled services—demand response rebates, customer data portals, renewable energy options—thus stepping in between the utility and the customer.

As daunting as such changes in the utility landscape appear, the cooperative business model—member-owned, not-for-profit—is well suited to this new environment. For cooperatives participating in the SGDP, new technologies have allowed them to offer their member-owners a whole new array of services, including customer data portals, prepay metering, residential thermal storage, residential energy storage, new pricing options, and automated outage notifications, among others. The experience of the participating co-ops can be viewed, at least in part, as a tale of transforming the utility from commodity supplier to service provider. In other words, the consumer services enabled by the smart grid will also be valuable in building the consumer trust needed to maximize its potential benefits.

The experiences of cooperatives that participated in the SGDP provide a preview of the risks and challenges ahead—and some of the solutions. The public and often toxic debates over smart meters that have bedeviled utilities since the PG&E controversy illustrate the risks. While cooperatives start out with the advantage of providing higher satisfaction to their consumer-members, they have not been exempt from these controversies. The collective experience of the SGDP co-ops offers a path forward, helping them shape a strategy and tools for building the customer trust needed in a more competitive environment.

THE RISKS

“Your meter is giving me nosebleeds”

Nearly all of the communications professionals who have gone through the experience of deploying a new AMI system agree on the importance of a proactive communications plan in educating customers and stakeholders in advance about the meter changeout and the new system. Following the controversy over PG&E’s smart meters, a cautionary tale for the entire industry,

NRECA set out to assist co-ops ward off similar battles by producing a “Communicators’ Toolkit for a Smart Meter Rollout” (Appendix A). Based on information from focus groups and a survey, the toolkit provides a guide to developing a communications plan and sample materials, including press releases, letters to member-consumers, presentations for public meetings, and even leave-behind door hangers.

Yet this brand of proactive communication about a basic utility function is new to many utilities, including co-ops. Many managers simply never considered communicating to their members about a meter changeout: their view was that the meter is utility property and the utility is free to make whatever change it deems necessary. Many co-ops installed smart meters without telling members and encountered no problems. (A PG&E employee noted, for example, that he had received no communication about the installation of a digital meter at a cabin he owned that was on co-op lines.) But in this brave, smart new world, the relationship between the utility and the customer is changing—the boundary between the utility and the customer is being altered. Customers aren’t the only ones concerned—at a staff meeting to discuss a potential AMI deployment, a long-time operations manager raised concerns that the utility’s domain would be extended beyond the meter. The smart grid alters the boundary line, and communication with consumers will be key in making this transition.

Kauai Island Utility Cooperative (KIUC) experienced by far the most intense and sustained controversy over smart meters. By all accounts, the cause was rooted in the island’s unique culture. A fairly young cooperative, KIUC is moving aggressively to increase efficiency and renewable energy capacity to reduce its reliance on the expensive diesel that must be shipped to the island. In 2013, KIUC won top honors from the Solar Electric Power Association for its solar development. The deployment of AMI is critical to the co-op’s resource management plan. To this end, the co-op purchased the Landis+Gyr Gridstream system and planned to install two-way meters for its 26,000 residential customers. As part of the demonstration project, KIUC also planned to install 1,000 in-home displays. Early on in the project, however, strong pushback from members created a significant obstacle.

As in many other jurisdictions, KIUC members raised concerns about the health impacts of smart meters and the adequacy of privacy protections. For utilities across the country, these debates have proved singularly frustrating to counter. What happened at KIUC is typical: a small but extremely vocal group of activists mounted a campaign against the new meters, sending letters to the editor, creating a website (stopkiuc.com), posting YouTube videos, attending community meetings, and even going door to door raising the alarm about “powerful radiation.” KIUC’s Jim Kelly has recounted members reeling off a list of ailments and attributing them to the meters—including nausea, fatigue, sleeplessness, chest pains, nosebleeds, and ringing in the ears.

Staff interviewed at KIUC and other co-ops for this report all shared the experience of trying to combat misinformation with data from Federal Communications Commission, peer-reviewed articles in professional journals, and other public and private agencies—usually to no avail. With the exception of KIUC, the number of other co-ops’ members who could not be persuaded to accept a smart meter was no more than a handful. As KIUC’s experience shows, however, a handful may be all it takes to derail a smart meter deployment.

It is interesting to note that some long-time staff remembered similar fears being raised about electromagnetic fields (EMF) more than 20 years ago. At that time, NRECA published a brochure to help co-ops educate and reassure their members about EMF.

Co-ops took different approaches to addressing members' concerns. In some states, the public utility commission chose to require utilities to offer an opt-out for customers. Many utilities followed that path voluntarily, preferring to accommodate these customers rather than engage in a public battle. While co-ops calculated the cost of reading analog meters differently, because they are member-owned, they uniformly required anyone opting out to pay the difference. To do otherwise would result in one set of members subsidizing special treatment for a minority. Anecdotally, adding a charge for in-person meter reading depressed the number of opt-outs.

Jim Kelly, the communicator for KIUC who was brought on board during the controversy, has sage advice for fellow cooperatives: keep the message simple and educate stakeholders in advance. The co-op communicated with members about the smart meter plans; however, in retrospect, the communications should have focused less on the technology and more on the issues that mattered to members. Kelly noted the co-op conducted surveys ahead of the project, which showed that 75 percent of respondents supported the move to smart meters, thus giving the co-op a false sense of security.

The experience of KIUC offers a central lesson for co-ops as they transition to a model that includes more services for members: communications should be framed from the consumer's point of view, not that of the utility.

“Smart meters are really surveillance devices”

Member concerns about privacy are far more difficult to address than health concerns because smart grid technology in fact will provide more data about the system and customers' usage. The new data are immensely valuable but also present a new risk.

Fewer KIUC members raised privacy concerns, but one customer did seek an injunction in federal court, arguing that the meters constituted an invasion of his privacy. He found a sympathetic judge, who did not issue an injunction but did express her own concerns in court, based on a flawed understanding of how smart meters work. In the end, KIUC settled with the customer, agreeing not to install a meter on his house.

It is common to hear utility staff scoff at the notion that they would use meter data—for example, a load profile that shows when a consumer is using a hot tub—to “spy” on members. “We’re too busy keeping the power on,” they say. These comments reveal a disconnect between the utility’s and consumer’s views of the data, however. Consumers are concerned because new meters make available a new pool of data about them and their habits. This concern is valid, and a utility would be well advised to commit publicly to a privacy policy regarding such new data.

Notably, the survey conducted by NRECA revealed that consumers who spend a greater portion of their take-home income on energy are more concerned about privacy. The good news is that these are the same customers who stand to benefit most from new applications enabled by this data that can lower their bills.

THE BENEFITS OF COMMUNICATING WITH MEMBERS ABOUT SMART GRID IMPROVEMENTS

Anecdotally, two co-ops that used the “Communicators’ Toolkit” to guide their AMI deployment found their customer satisfaction scores actually rose over the course of the project. Simply communicating with consumer-members about efforts to modernize the system and improve reliability and efficiency will improve the co-op’s relationship with its consumers.

It is also true that extracting the full benefit of smart grid technologies requires customer engagement, which is possible only with more active communications. To cite the most obvious example, residential load control using AMI or smart appliances requires the participation of members—a whole lot of them. While many co-ops have longstanding demand response programs based on one-way communication, Flint Energies’ Senior Vice President for Member Relations Jimmy Autry warns that times have changed, and gaining the necessary trust of consumers has become more difficult. A recent study by the Lawrence Berkeley National Laboratory found demand response participation rates for 19 programs that were part of the DOE investment grant project ranged from 5% to 28%. Many utilities have little experience in soliciting consumers to join in a partnership, however.

Tresa Hussong with Iowa Lakes Electric Cooperative shared a telling anecdote in an interview about the co-op’s smart grid projects. The co-op found that consumers who had signed up to participate in a demand response program when purchasing water heaters then did not agree to have their water heaters connected to the system once the infrastructure was in place. When the co-ops’ linemen asked them, however, people were much more likely to answer “Yes.” According to Hussong, people trust the linemen—they are the face of the cooperative. This anecdote underscores the essential element of trust in effective communications with consumers.

When NRECA first began working on developing its “Communicators’ Toolkit,” it convened a group of communicators to discuss what content and messages would be helpful. Two themes emerged from that initial meeting: (1) executive leadership at many co-ops viewed communication with members about the meters as an afterthought to the meter deployment process, and (2) utility staff have difficulty in putting themselves in the consumers’ shoes when thinking about how messages from the utility will be received.

Another key to successful communications, according to Autry, is focusing on the benefits to members. While this principle sounds simple, following it can prove more difficult in reality. First, most of the benefits of smart grid applications are operational and will not be noticed by the customer. Second, while many utilities stressed the benefits of giving customers access to usage data and “greater control” over their bills, NRECA’s research found members less interested in the benefits of seeing their own usage data than in improved reliability and efficiency.

Communications should address the key questions customers want answered (how will this new meter affect my bill?) and how the smart metering system will benefit them directly. While smart meters and other smart technologies will provide enormous benefits to co-ops and their members down the road, when deploying the meters, only communicate what you can deliver on day one. In public opinion research conducted by NRECA, the following benefits resonated with a strong majority of co-op consumer-members.

Improved efficiency

Co-op consumer-members like to know that the co-op is working to keep costs down by investing in efficiency. An NRECA survey found that consumers could readily understand that new meters allow the co-op to read meters remotely, reconnect remotely, and locate outages more quickly and precisely. They also understand that meter reading and improved outage management can save the co-op money— a savings that will benefit members.

Improved reliability

Consumers understand and like the fact that new technologies can make the system more reliable. It is easy to explain the difference between having a lineman in a truck try to find an outage and finding it using data sent by smart meters.

No more estimated bills or self-reads

A high percentage of co-ops transitioned from self-reading to AMI. For these co-ops, an end to the hassle of self-reading was a benefit to their members.

Improved customer service

The additional data from smart meters can help co-ops work with members to diagnose why they have high bills. There are many stories about co-ops using the data from smart meters as a tool to help their members analyze what is happening in their homes or businesses—and to help them find solutions.

CONCLUSION

The growing recognition that consumer distrust can be a formidable barrier to the smart grid is driving research efforts that look at consumer opinion and behavior. The unique relationship between co-ops and their consumer-members offers a new perspective on the role of trust in ensuring consumer acceptance. NRECA believes that communication without trust will not be effective. A utility can send out a stream of glossy attractive communications about sexy new devices and rebates, but if the consumer does not trust the utility, attracting consumer participation will be difficult.

Appendixes

Appendix A: Communicators' Tools

1. Communicators' Toolkit for a Smart Meter Roll-Out table of contents
2. Communicating about Smart Meters and the Smarter Grid
3. Responding to Health and Privacy Concerns:
Sample Recommendations and Talking Points
4. Deploying New Meters: Messages for Consumer Members

Appendix B: 2011 Smart Meter Messaging Survey Results, April 2011



- Straight Talk
- Best Practices and Samples
 - » Always On Communication
 - » Annual Meetings
 - » Editorial Calendar
 - » Co-ops Accelerating Innovation with CRN
 - » The Case for Communications
 - » Communication Planning Toolkit
 - » Rate Increases
 - » Capital Credits Communications
 - » Crisis and Severe Weather Communication
 - » Resources for Website Managers
 - » **Communicators' Toolkit for a Smart Meter Roll-Out**
- Social Media Guide
- Professional Development and Awards
- Communicator Groups
- Regional Meetings Press Kit
- Glossary of Terms (Use or Usage) and Sample Style Guide
- NRECA Graphic Standards Manual
- NRECA Map Data Project
- NRECA Communications Department Staff Directory

Communicators' Toolkit for a Smart Meter Roll-Out



This toolkit was funded by and coordinated with the Cooperative Research Network's Regional Smart Grid Demonstration Project (SGDP). In preparing the consumer materials, NRECA conducted focus groups in Colorado and Iowa and a telephone survey of 500 consumer members. The results of this consumer research are incorporated into the messaging as well as "the look and feel" of these materials.

All of the consumer materials are customizable – every co-op approaches the challenge of installing new meters a little differently. Some of the text on the consumer materials may not apply to your co-op. You can make edits based on your circumstances. We hope this toolkit makes your job easier.

Responding to Member Concerns About Privacy and Health Impacts

Please start with the recommendations document (linked first), which includes high-level recommendations on how to respond to member concerns.

- [Smart Meter Health and Privacy Concerns: Sample Recommendations and Talking Points](#)
- [Sample Co-op Response to Member RF Concerns \(Tideland EMC\)](#)
- [RF Exposure Comparison Graphic](#)
- [Background on Smart Meters and RF from the Utilities Telecom Council](#)
- [EPRI: A Perspective on RF Exposure Associated With Residential Automatic Reading Technology](#)

Developing a Communications Plan for Deploying Smart Meters

Use the documents below to develop a communications plan and effective messages.

- [Sample Communications Plan & Timeline](#)
- [A Guide to Communicating About Smart Meters](#)
- [Message Triangle for a Smart Meter Roll-Out](#)
- [Sample press release](#)
- [Sample newsletter article](#)
- [Digital Meter FAQ](#)

Consumer Materials

Note: Before you download any image, please review the [legal requirements](#) (PDF).

A proof PDF and packaged InDesign files are provided for the customizable items.

- Door hanger ([PDF \(low-res\)](#), [PDF \(high-res\)](#), [InDesign](#) (ZIP))
Note: For production of the door hanger, contact The Summit Group for pricing or to print the customized door hangers.
Contact information:
Terry O'Neal
240-491-5229
Terry_Oneal@summitmq.com
- Brochure ([PDF \(low-res\)](#), [PDF \(high-res\)](#), [InDesign](#) (ZIP))
- "The Smarter Grid" Illustration ([PDF](#), [JPG](#))
- [Radio-Frequency Exposure Levels from Smart Meters: A Case Study of One Model](#)
A whitepaper from the Electric Power Research Institute

Questions?

Questions, comments or problems with the communications kit materials?
Contact Tracy Warren, Sr. Media & Communications Manager, tracy.warren@nreca.coop.



COMMUNICATING ABOUT SMART METERS AND THE SMARTER GRID

Communicating to customers about advanced meter deployment—and eventually smart grid—is a challenge that many cooperatives are facing or will face in the next few years. The good news for co-ops that haven’t begun installing smart meters is that we can benefit from new public opinion research and from lessons learned by utilities that have already gone through the process.

Messaging around smart meters is changing.

Messaging around smart meters has changed as utilities have learned to avoid over-promising. In communicating about new automated meters, the messages should be focused on the value that smart meters deliver to customers. Use the smart meter “message triangle” to help your co-op develop consistent, effective messages throughout the deployment.

NRECA conducted focus groups and a telephone survey to find out which benefits are important to consumer members and what concerns they may have. In general, while long-time co-op members trust their co-ops to make sound investments in new technology, newer members and members whose electric bills have a big impact on the household budget have more concerns about the new meters. Members with high bills are also more interested in how the new meters can benefit them.

Using the smart meter message triangle

Public research has shown what you probably already know: consumers know very little about automated meters. Some utilities have encountered backlash from advocacy groups, consumer skepticism and lawsuits in the process of deploying new meters. Co-ops can reduce the risk of opposition by going out early with the triangle’s positive messages – and returning to the central theme: “new technology to help us serve you better.”

The message triangle is a tool for all co-op employees to help the co-op as a whole communicate effectively with members and the public. When communicating about a new technology it’s easy to get lost in the weeds. The triangle boils everything down to three basic messages: the new meters will improve efficiency, improve reliability and help the co-op keep costs down. Details shown under the main points are suggestions.

Adjust them according to your local or regional power supply situation, using facts about your co-op.

These benefits reinforce the central point: “new technology to help us serve you better.” By consistently repeating these messages the co-op can break through all the other noise and static – including negative messages being spread on the Internet and word of mouth.

The messages about the benefits should be repeated over and over in any public communication, including media interviews, stakeholder meetings and conversations with neighbors.

In conversations and presentations, stick to three or four main points — no more. That will be enough to show the big picture but not so much that people will tune out. While all sides of the message triangle reinforce the main point in the center, don’t assume that people will make the connection on their own. Whenever it seems natural, remind people, “the meters are a new technology that will help us serve our members better.”

Cooperatives must continue to work to build trust within the community.

Communicators can build trust by providing the media, employees, and other stakeholders with a straightforward and transparent explanation of the smart meter project plan, scope, and timeline early in the process.

Be sure to emphasize that co-ops, as member-owned not-for-profits, are looking out for the consumer.

It’s All in the Details

In research conducted by NRECA, consumer said they want to know how the meter installation will directly affect them: When will the meter be installed? Are they going to lose power during the installation? Are their rates going to change as a result of the new meter?

Communicate early, using a variety of media, with these key details:

- when members can expect to have the new meter installed
- what will happen during installation
- what they will see on their bill following installation

Consumers’ top concern about the new meters is whether or not they are going to result in higher costs. The reality is that for some members – those who read their own meters and those with older, less accurate meters – the answer may be yes. In addition, experience shows that installing new meters when the weather is changing can also lead to suspicions that higher bills are the result of the meter.

Customer service representatives should be prepared to explain the first bill following installation, which will have either two readings (one from the old meter and one from the new) or a combined total. They should also be prepared for some high bill complaints for those members whose old meters were inaccurate.

IT'S ABOUT THE MEMBER!

COMMUNICATING THE BENEFITS

Communication pieces should address the key questions customers want answered and how the smart metering system will benefit them directly. While smart meters and other smart technologies will provide enormous benefits to co-ops and their members down the road, when deploying the meters only communicate what you can deliver on day one. In public opinion research conducted by NRECA, the following benefits resonated with a strong majority of co-op consumer members:

Improved efficiency

Co-op consumer members like to know that the co-op is working to keep costs down by investing in efficiency. Explain that with new meters the co-op can read meters remotely, reconnect remotely and locate outages more quickly and precisely. Make the point that remote meter reading and improved outage management can save the co-op money, a savings that will benefit members.

Improved reliability

Smart meters help the co-op identify the location of outages and respond more rapidly to restore power and give customers more information. Note that many utilities are recommending that customers continue to call in to report outages, to ensure that the systems are working properly.

Improved power quality

With more information coming from the meters and other new applications, the co-op can monitor the system better and improve power quality by reducing the number of spikes, blinks and surges.

No more estimated bills or self-reads

New meters improve the accuracy of meter reading. Smart meters eliminate the need for estimated reads or "self-reads," which may be prone to human error.

Access to data about power use.

In Touchstone Energy's 2010 Cooperative Difference survey, more than 60 percent of the respondents said they would definitely or probably use a web portal with information about their energy use. Consumers also like being able to choose whether to see hourly, daily or monthly data. Co-ops that have provided this feature to their members have received a very positive response from members.

Improved customer service

The additional data from the smart meters can help co-ops work with members to diagnose why a member has high bills. There are lots of stories about co-ops using the data from smart meters as a tool to help their members analyze what is happening in their home or business – and to help them find solutions.

CONSUMER CONCERNS ABOUT SMART METERS

Recent controversies over the deployment of smart meters in some areas of the country illustrate the importance of being prepared to allay consumer concerns. These controversies also underscore the value of communicating about the new meters early in the process. If your consumer members hear about the new meters from someone else first, the task of building their trust will be much harder.

Cost

Consumers are concerned that the new meters will increase their electric bills. In some cases, if the existing meters are old and inaccurate, the new accurate meters *will* in fact increase their bills. Customer service representatives should be prepared to take calls coming from members whose bills have gone up. Be careful not to suggest that the efficiency of the new system will result in lower electric bills.

Privacy

Public opinion research conducted by NRECA showed that consumers are susceptible to messages from the media or advocacy groups claiming that the new meters are a privacy threat. Be prepared to explain the steps taken to protect the data from the new meters.

Health concerns

Some utilities have faced backlash from customers concerned about new meters and radio waves. The level of RF waves emitted by smart meters, which are outside the home, is hundreds of times less than that of cell phones. Communicators and customer service representatives should be prepared to address health concerns. Consider posting information on the website. The Electric Power Research Institute has published reports on this topic.

REACHING THE CONSUMER MEMBERS

Research conducted by NRECA illustrates the importance of using multiple communications methods for reaching the members. 53 percent of those polled said they prefer to get their information via a letter in the mail; 22 percent prefer a phone call; 18 percent, especially younger members, prefer email.

The ideal communications plan will combine newsletter articles, letters, phone calls, emails and door hangers to provide members with information about the meter installation project.

Preparing the customer service representatives to answer members' questions and concerns during and after the installation is critical. Co-ops score high in customer satisfaction – new meters should increase satisfaction if the deployment is successful.

More Information

For more information, sample communications and tools, see the communicators section on Cooperative.com. or contact Tracy Warren (703) 907-5746.



Responding to member concerns about privacy and health impacts related to smart meters

Editor's note: We have highlighted information that will need to be customized; however, please be sure to read this language carefully before using it to make sure that it applies to your system.

A few suggestions for responding to consumer concerns:

- Respond swiftly. Do not let allegations go unanswered (even the wacky ones).
- If you have members who have concerns about smart meter radio frequency fields (RF), privacy, or security (or all three), a personal response from a co-op representative is almost always the best option.
- Community listservs often serve as hub for this type of controversy: if possible, monitor the discussion on these listservs and respond to allegations swiftly. (You might consider a Facebook page dedicated to your smart meter rollout.)
- Make sure to get out into the community—ask to speak to any and all civic group meetings about the smart meter deployment and its benefits to members.

ON PRIVACY

The data from new digital meters helps us serve our members better. Our goals in installing new meters are to deliver better service, control rising operating expenses, improve system reliability through improved outage management and preventive maintenance, and provide our members with information they can use to make informed decisions about energy use.

[ABC cooperative] does not sell its members' data to any third party. [ABC Cooperative] abides by stringent policies that protect the privacy and security of your electric usage data. These policies can be found [insert information on where to find the policies, e.g., in the by-laws, in the service rules and regulations, posted on the co-op website, etc.].

[ABC cooperative] is committed to protecting the privacy and security of our members' personal information.

ON RF WAVES – Power line carriers

The data from the new meters will be sent back to the co-op office over power lines. Using the power lines for data transmission means that the meters will not emit any radio frequency fields (RF).

You should know that we are all continuously exposed to very low levels of both natural and man-made RF fields. Even the earth's surface and the human body are constant sources of RF fields. Inside your own home, you likely will find numerous items that emit RF fields, including microwave ovens, cell phones, cordless phones, televisions, Wi-Fi signals, antennas, and receivers, as well as lighting fixtures.

Your cooperative is a not-for-profit private business that is solely owned and operated by the members who receive electric service from us. When our board of directors approves a policy or procedure for the use of new equipment and technologies, they do so knowing that it also will apply to their own homes. In

using this type of metering system, we have not only deemed it to be a wise and safe choice for all co-op members and their families, but our own families as well.

ON RF WAVES – Wireless meters

Research conducted by the Federal Communications Commission (FCC), the Electric Power Research Institute, the Utilities Telecom Council, and others has found no negative health impacts from digital meters that send information via a wireless communications network. The radio frequency fields (RF) emitted by digital meters fall well below the maximum recommended in federal guidelines.

People are continuously exposed to very low levels of natural and man-made RF. Even the earth's surface and the human body are constant sources of RF. Digital meters send information about home electricity use to [ABC Cooperative] by RF signals. [ABC Cooperative's] meters emit RF similar to that of many common household devices, such as baby monitors, cordless phones, remote-controlled toys, and medical monitors.

The exposure from new meters is much lower than other common sources for two reasons: (1) infrequent signal transmission, and (2) distance. On a daily basis, the cooperative's meters emit power for less than [one minute/five minutes] per day. In addition, these meters typically are placed outdoors, with a wall separating the meter from the living space. This combination of placement and infrequent operation means that you would need to be within one foot of **7,000** digital meters all communicating at the same time to reach the FCC exposure limit. You can rest assured that our new metering equipment is safe for you and your family. The metering products we selected have undergone testing by an accredited lab to verify that they meet all FCC requirements. [Make sure to verify with the meter manufacturer that this is the case!]

Your cooperative is a not-for-profit private business that is solely owned and operated by the members who receive electric service from us. When our board of directors approves a policy or procedure for the use of new equipment and technologies, they do so knowing that it also will apply to their own homes. In using this metering system, we have not only deemed it to be a wise and safe choice for all co-op members and their families, but our own families as well.

ON CYBER SECURITY

It's extremely unlikely but not impossible that someone could access information from the cooperative's metering system. Meter manufacturers are incorporating security features and encryption technology into their meters, as recommended by national security experts. New meters allow us to determine if someone tampers with your meter.

NOTE: Some co-ops have put in place cyber security and risk mitigation plans using the Cooperative Research Network's "Guide to Developing a Risk Mitigation and Cyber Security Plan," which is based on best practices compiled by the National Institute of Standards and Technology. If you would like more information on these materials, you can find them on the CRN page on NRECA.coop.

DEPLOYING NEW METERS: MESSAGES FOR CONSUMER MEMBERS

In 2011 NRECA, as part of the Cooperative Research Network's Smart Grid Demonstration Project, conducted public opinion research to test effective messages for communicating with members about smart grid technology.

EFFICIENCY

- With remote meter reading and reconnection, we can save time and money (and reduce air pollution).
- With more detailed data about demand and usage we can distribute power more efficiently.

RELIABILITY

- New meters help us locate—and respond to—outages faster and more safely.
- New meters can help us improve power quality, reducing surges and blinking.
- New meters mean consistent billing periods.

AFFORDABILITY

- Operating more efficiently can help minimize cost increases.
- We can use the new data to help our members address high bills.

**New
technology
to help us
serve you better**



2011 Smart Meter Messaging Survey Results

April, 2011

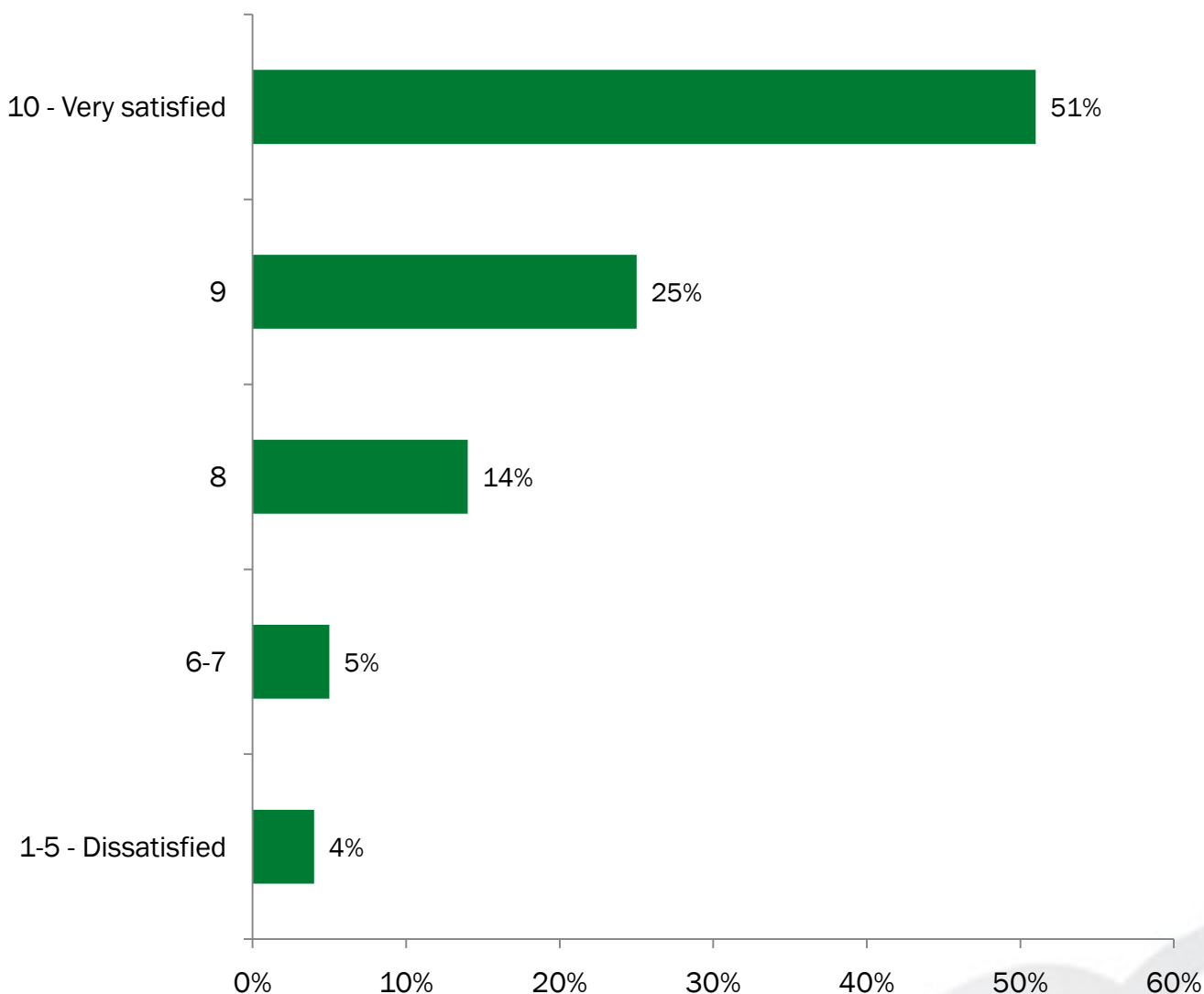
Study Methodology

- Five hundred interviews were completed April 7th – 13th – 125 surveys with residential members of four co-ops:
 - ✓ Delaware County Electric Cooperative (New York)
 - ✓ Dixie Electric (Mississippi)
 - ✓ Federated REA (Minnesota)
 - ✓ Victoria Electric Cooperative (Texas)
- For two of the co-ops where connect date information was available, sample was drawn proportionate to tenure.
- This study was completed among the memberships of four different cooperatives, three of which are planning to install smart meters in the next 12 months and a fourth, Delaware County Electric, has had AMR in place for several years.
- Average interview length was 19 minutes.

Cooperative Performance Ratings

Overall Satisfaction With Electric Co-op

Mean = 9.03

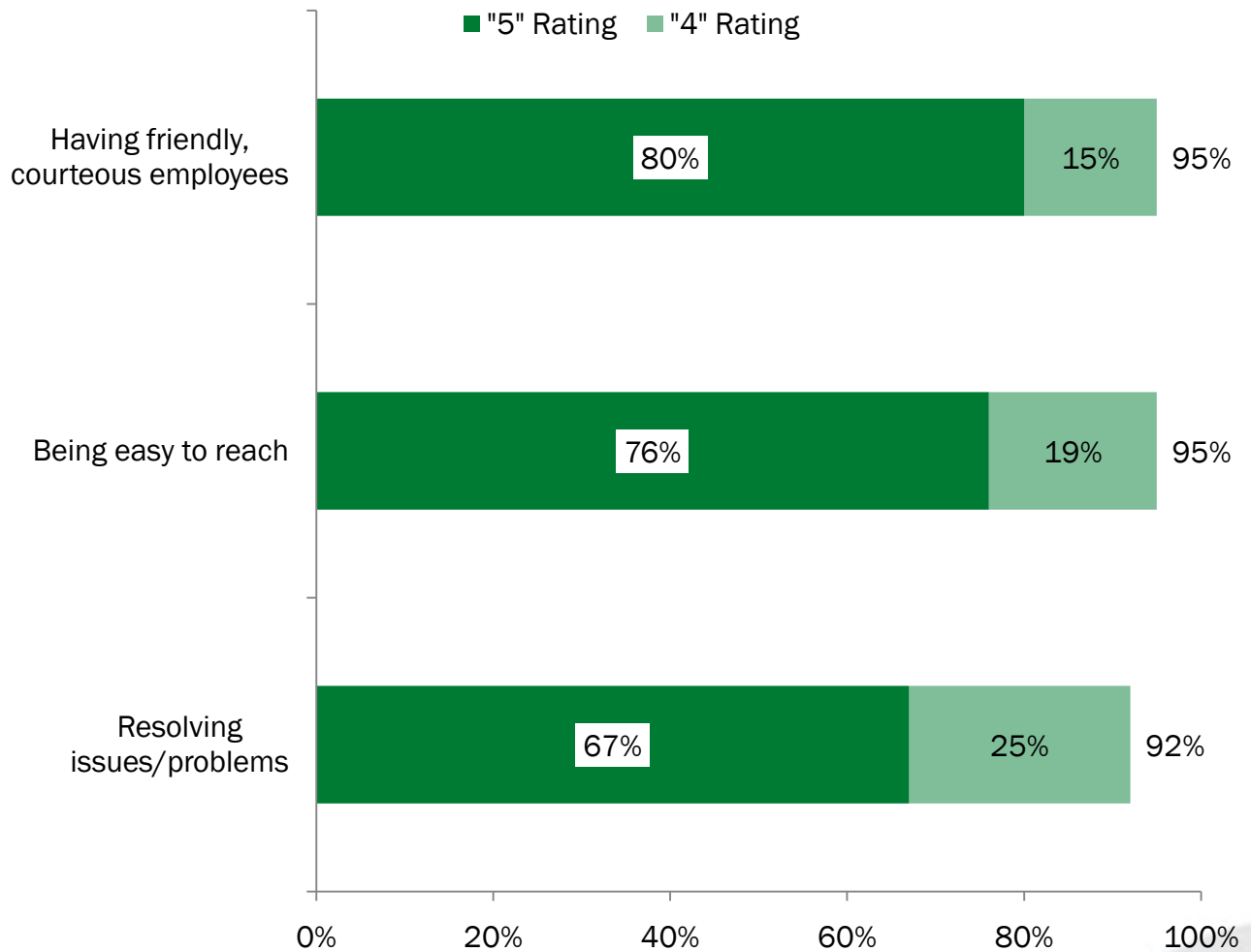


Using a 10-point scale where 1 is “very dissatisfied” and 10 is “very satisfied,” how satisfied overall would you say you are with your electric co-op?

- Overall, respondents express a strong level of satisfaction with their electric cooperative, with three-quarters indicating they are satisfied (25%) or very satisfied (51%). Satisfaction is high for all four cooperatives, with mean ratings ranging from 8.56 to 9.30.
- As is typical in other residential studies, members who are older, longer-tenured, and those with a sense of member identity give much higher satisfaction ratings than do their counterparts.

Member Service Performance Ratings

1-5 Scale: 1 = Very Poor; 5 = Excellent
Top 2 Box – “4” and “5” Graphed

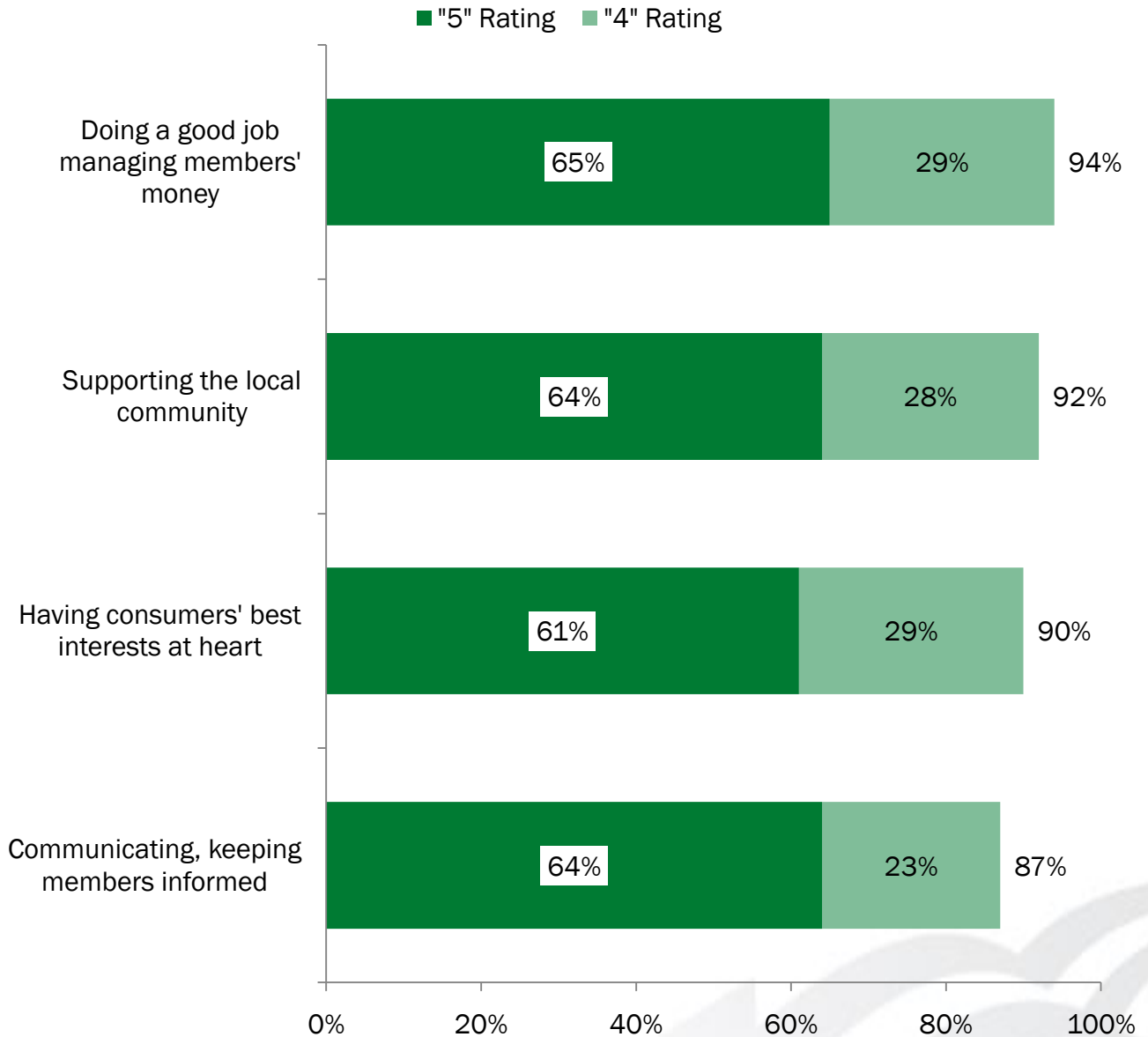


On a 5-point scale where 1 means “very poor” and 5 means “excellent,” how would you rate electric cooperative on the following?

- Respondents are very satisfied with the member service provided by their cooperative with more than nine in ten giving top two-box ratings.

Image, Communication and Trust Ratings

1-5 Scale: 1 = Very Poor; 5 = Excellent
Top 2 Box – “4” and “5” Graphed



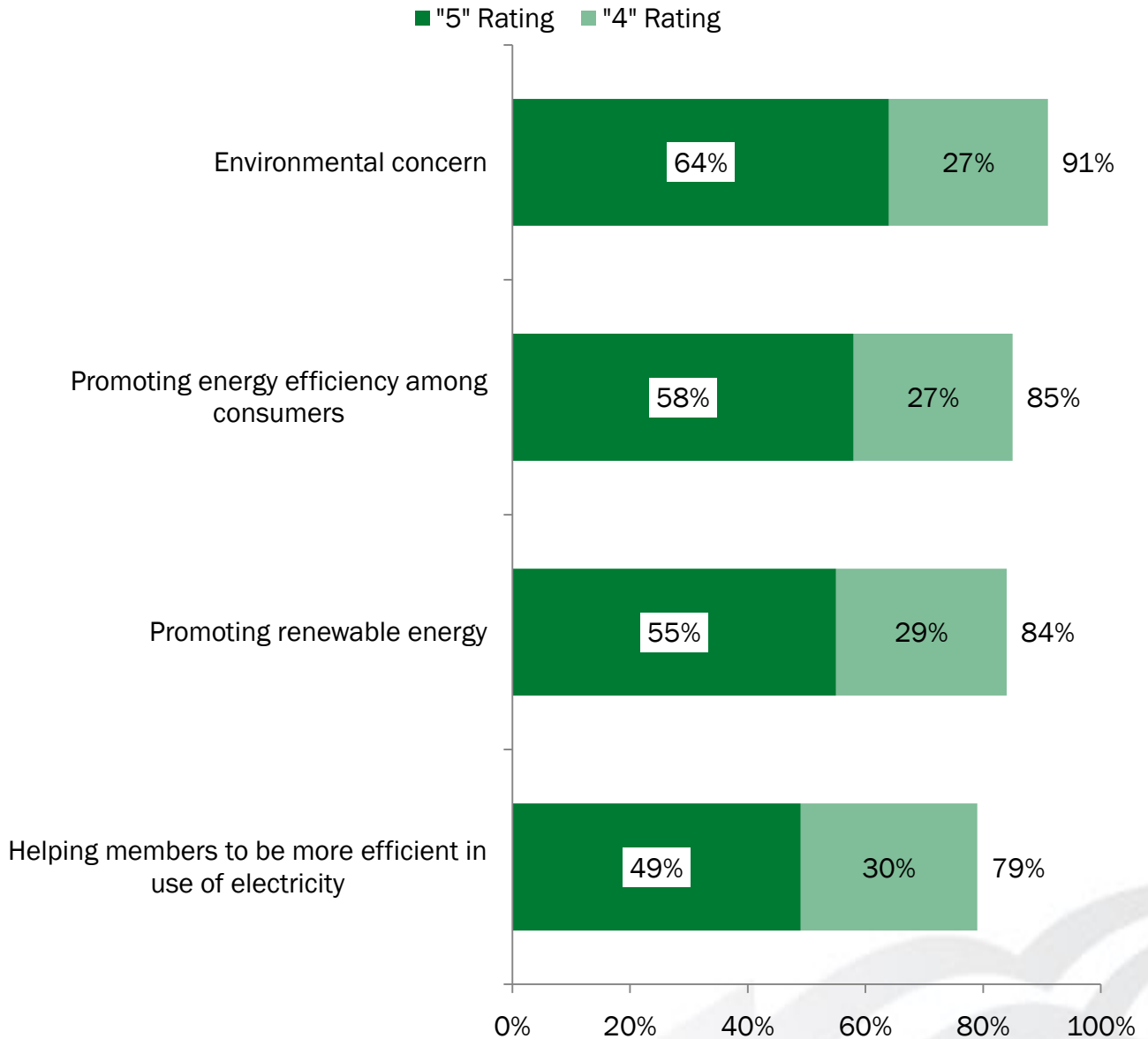
On a 5-point scale where 1 means “very poor” and 5 means “excellent,” how would you rate electric cooperative on the following?

- High ratings are also given for the communication and trust attributes – especially for the co-op effectively managing the members’ money and support of local communities.

Energy Efficiency/Renewable Energy Ratings

1-5 Scale: 1 = Very Poor; 5 = Excellent

Top 2 Box – “4” and “5” Graphed

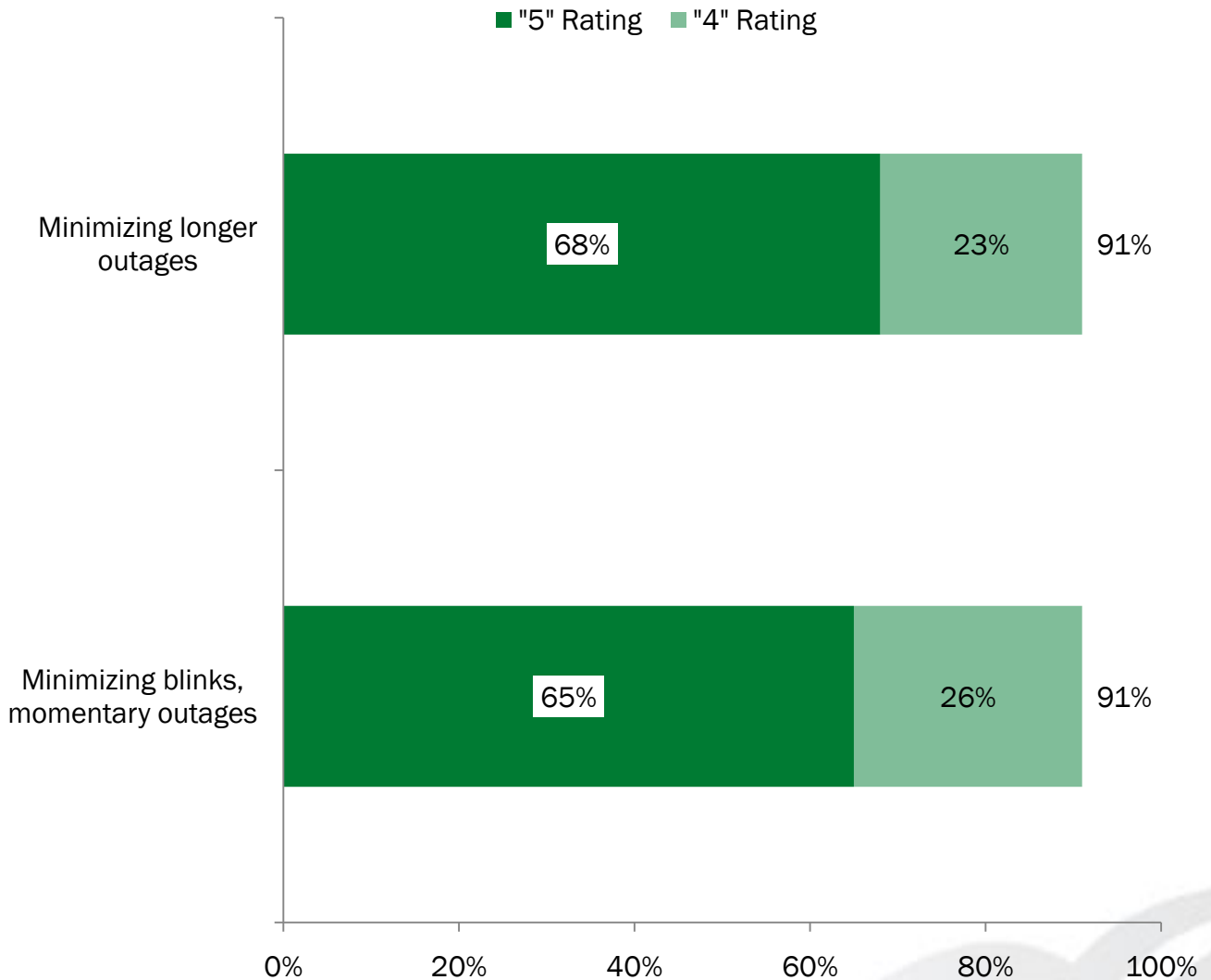


On a 5-point scale where 1 means “very poor” and 5 means “excellent,” how would you rate electric cooperative on the following?

Electric Service Performance Ratings

1-5 Scale: 1 = Very Poor; 5 = Excellent

Top 2 Box – “4” and “5” Graphed



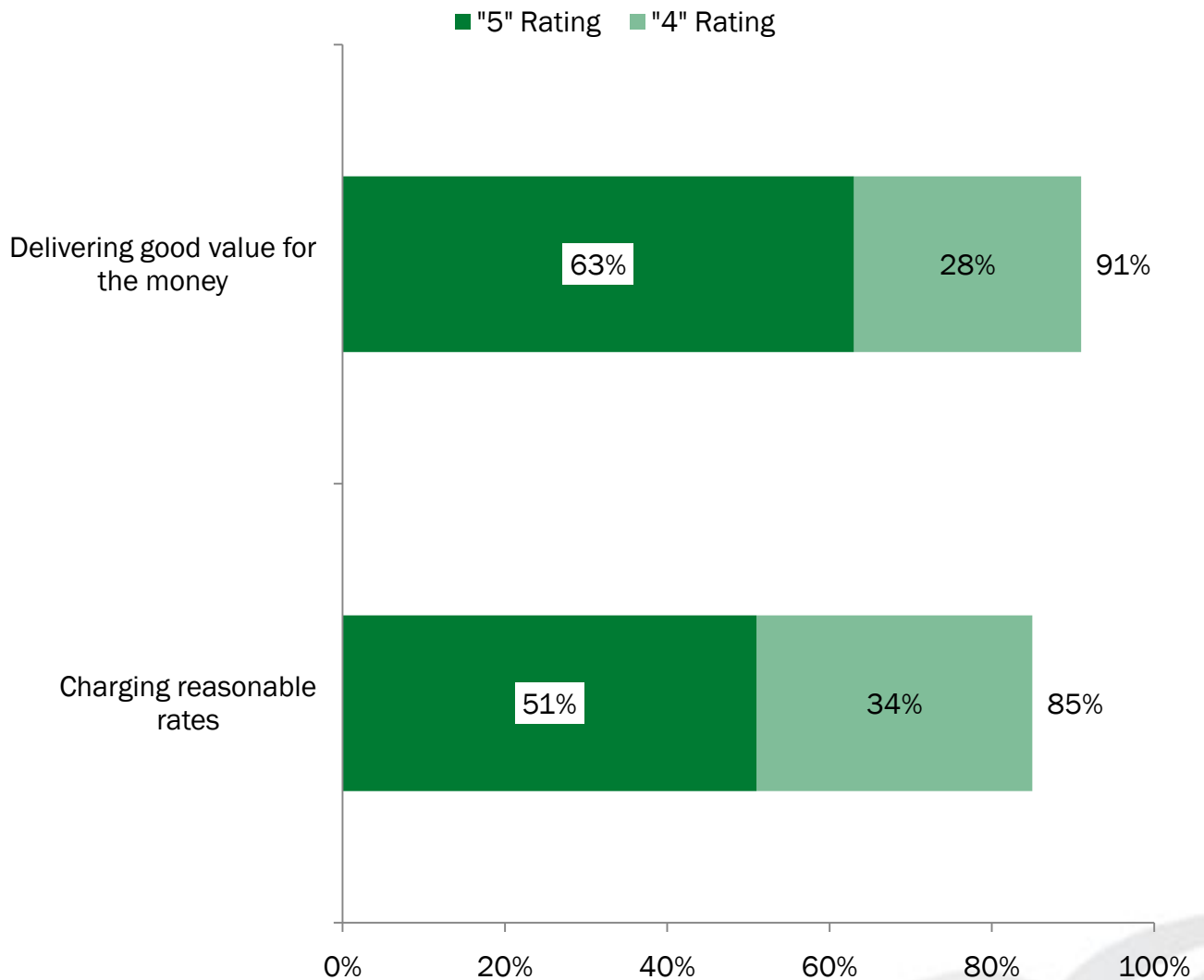
On a 5-point scale where 1 means “very poor” and 5 means “excellent,” how would you rate electric cooperative on the following?

- The cooperatives receive high marks for both reliability and power quality.

Billing and Cost Ratings

1-5 Scale: 1 = Very Poor; 5 = Excellent

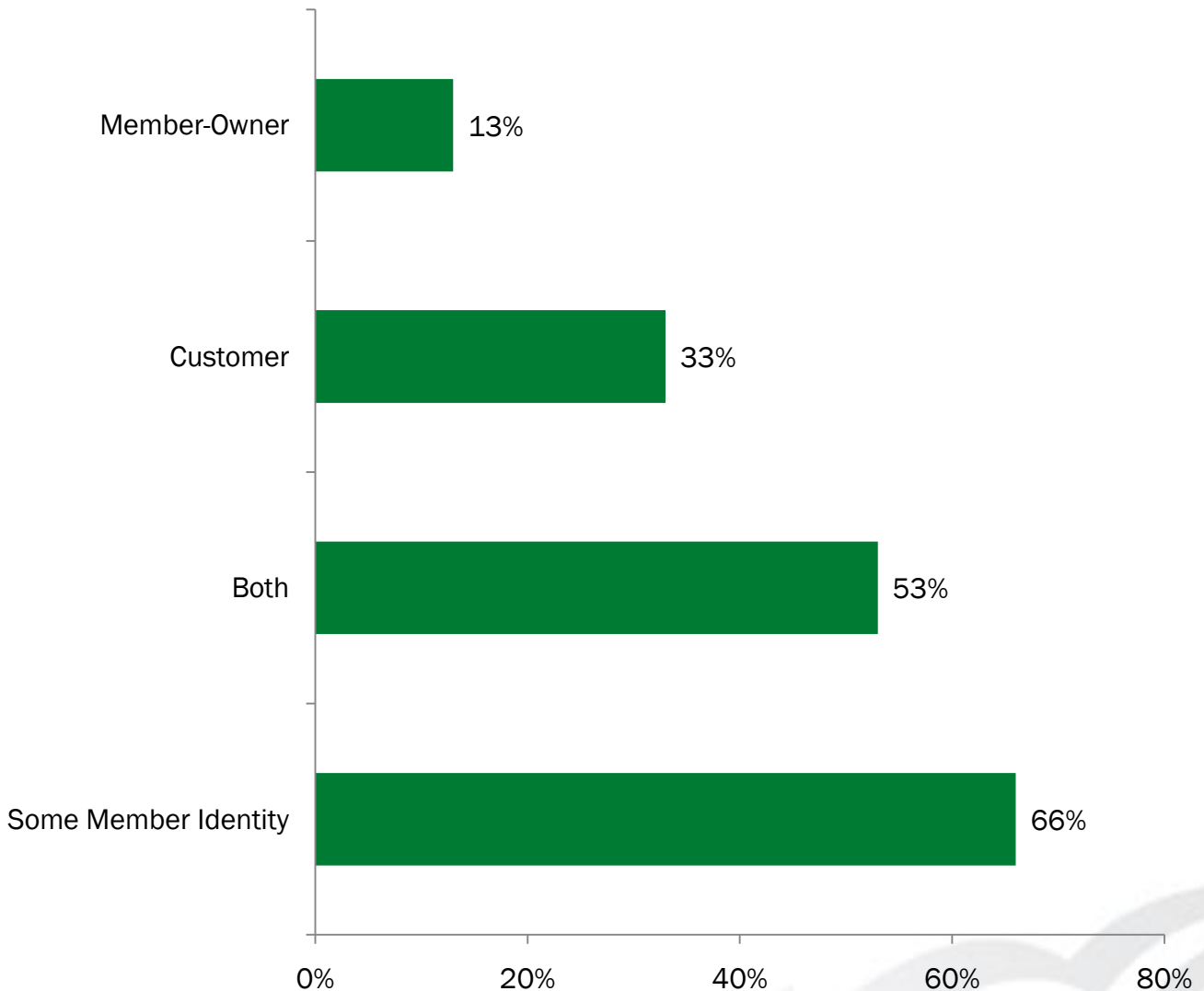
Top 2 Box – “4” and “5” Graphed



On a 5-point scale where 1 means “very poor” and 5 means “excellent,” how would you rate electric cooperative on the following?

- A strong majority feel the co-op delivers good value and charges reasonable rates.

View Self as Member-Owner or Customer of Electric Cooperative



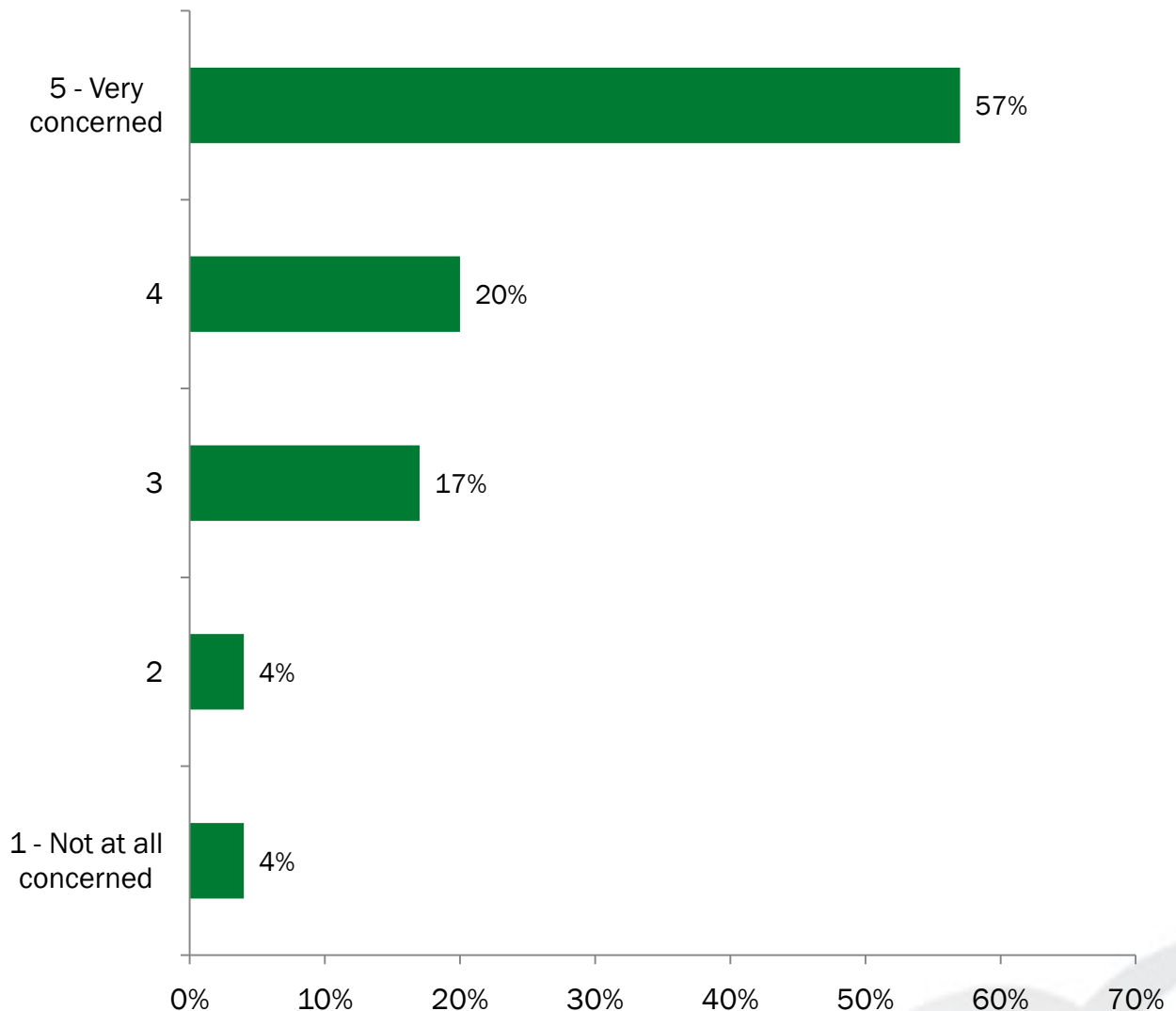
Do you view yourself as a member-owner or as a customer of your electric co-op, or both?

- Member identity is high with two-thirds having some member identity.
- While there are no significant differences based on age or tenure, those with member identity are much more likely than “customers” to have lower monthly electric bills.

Energy Situation

Level of Concern About Energy Situation

Mean = 4.22

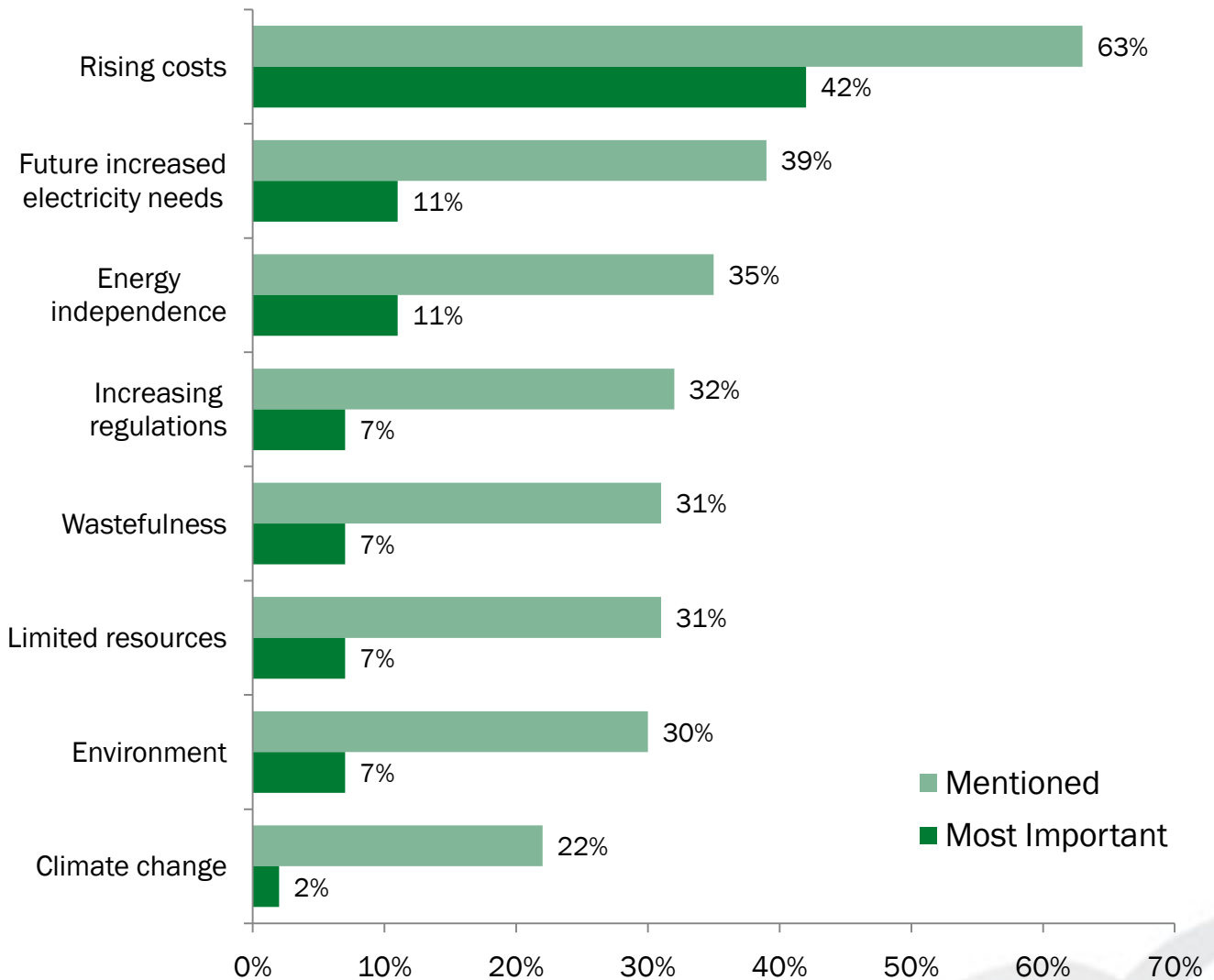


How concerned are you about the energy situation? Please use a 1 to 5 scale where 1 is “not at all concerned” and 5 is “very concerned.”

- Fully 77% are concerned or very concerned about the current energy situation. Fewer than one in ten are not concerned (giving “1” or “2” ratings).
- Those who are more concerned about the energy situation also report that their monthly electric bill has a big impact on their family budget, minimizing the amount of electricity used in their household is important, and they actively work to keep electricity bills low.
- In addition, older members (45 or older) and less affluent members are more concerned than are younger or more affluent members.

If Concerned About Energy Situation, What Is Driving Concern

Asked of Those Giving a “3” or Higher Rating, n = 459

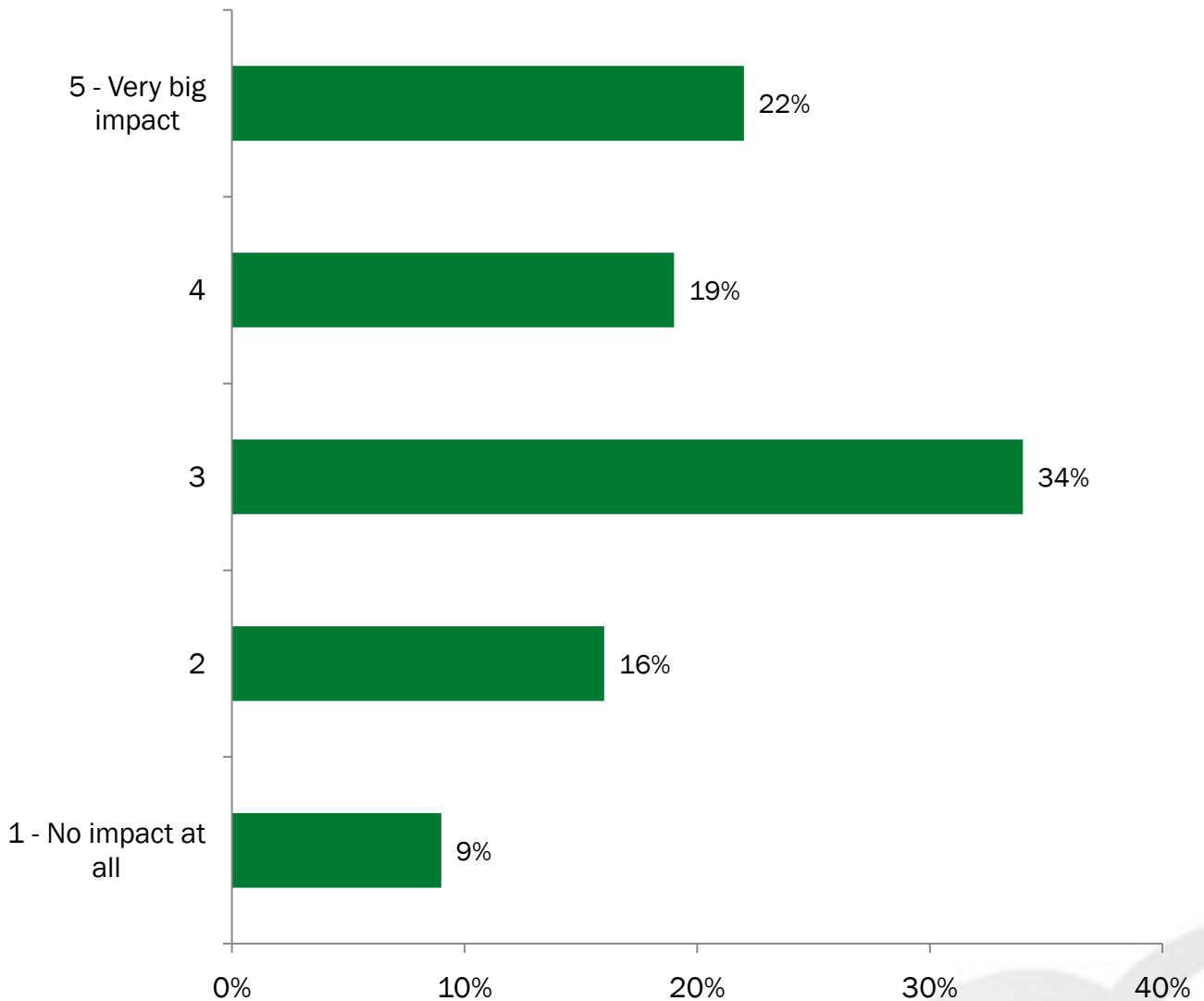


Which of the following is driving this level of concern? (If more than one selected) Which one is the most important?

- Respondents are almost four times more likely to indicate rising costs as the most important key driver of their concern than they are to identify future energy demand or energy independence.
- Among those concerned about the energy situation, the most frequently mentioned issues driving their concern are rising costs, future increase in the demand for electricity, and energy independence.

Impact of Monthly Electric Bill on Family Budget

Mean = 3.29

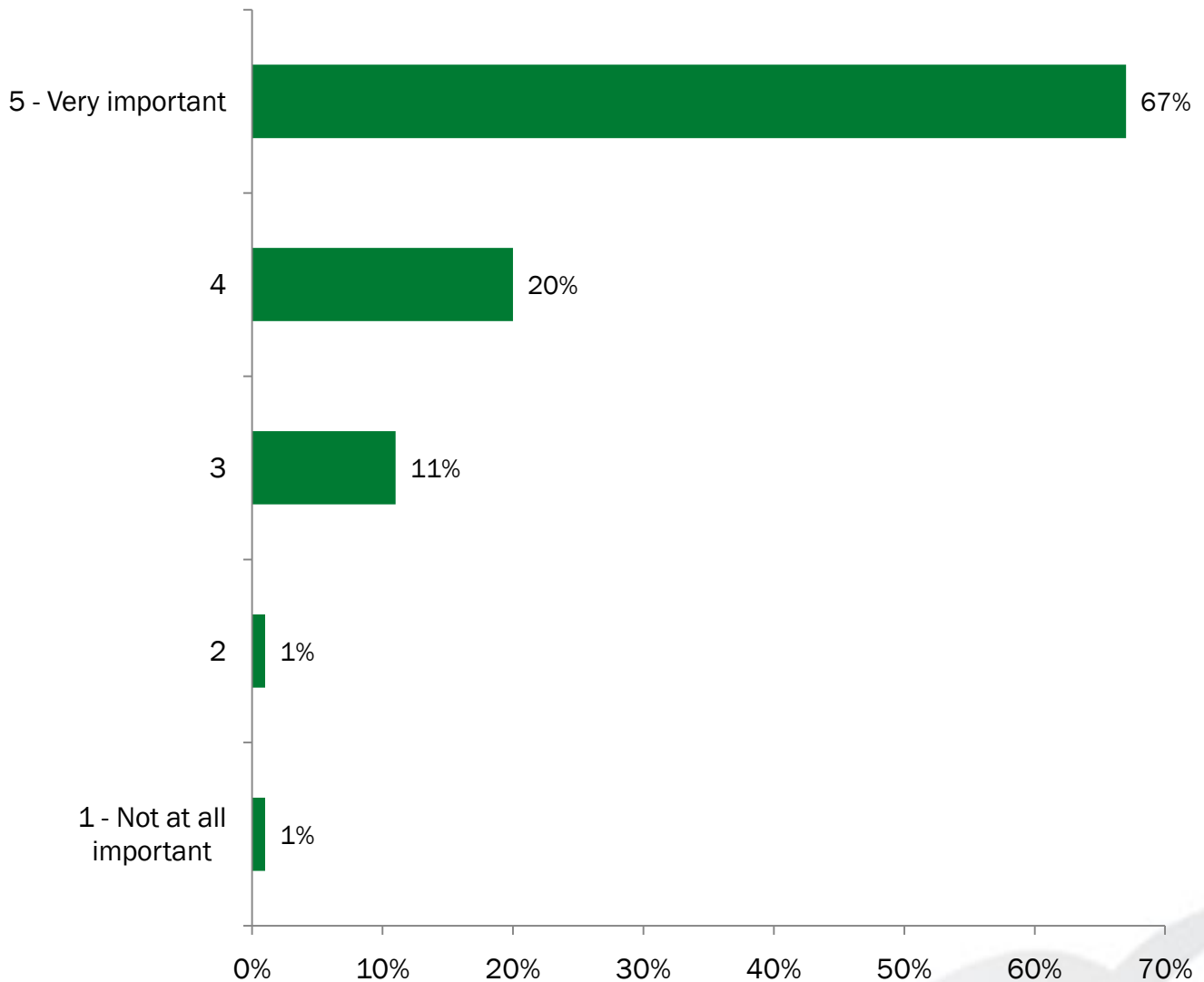


How big an impact does your monthly electric bill have on your family budget? Use a scale of 1 to 5 where 1 is no impact at all and 5 is a very big impact.

- Fifty-nine percent do not feel their electric bill has a big impact on their family budget. As would be expected, those with higher monthly electric bills and/or less affluent members are more likely to feel their electric bill has a big impact on their family budget.

Importance of Minimizing Electricity Use in Household

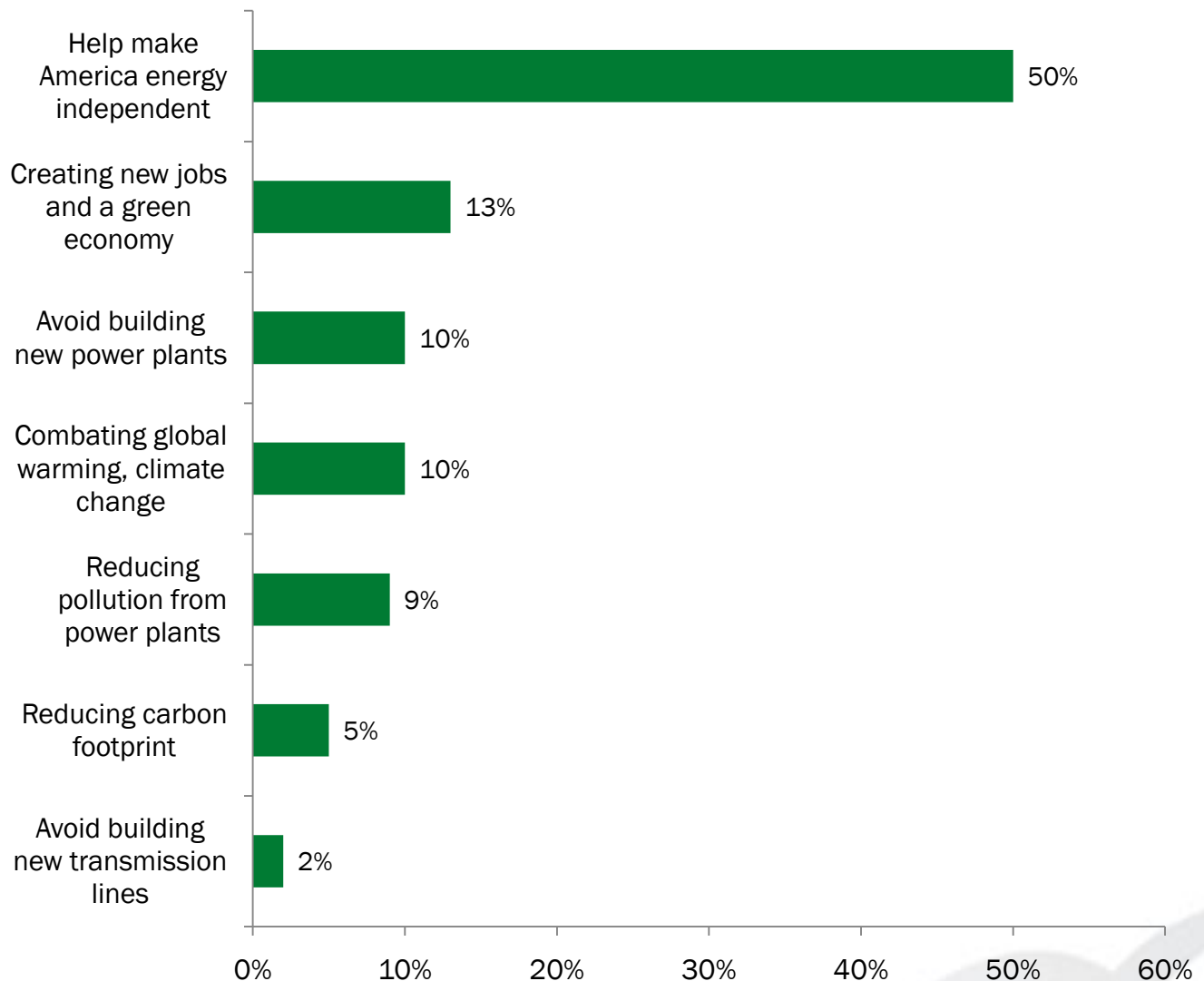
Mean = 4.51



Looking at your own personal situation, how important is it to you to minimize the amount of electricity you use in your household?

- Almost nine in ten (87%) feel it important or very important to minimize electric use in their household.
- Older members, less affluent members, retired members, and females are more likely to feel it important to minimize household electric use.

Aside From Saving Money, Most Important Reason to Save Energy

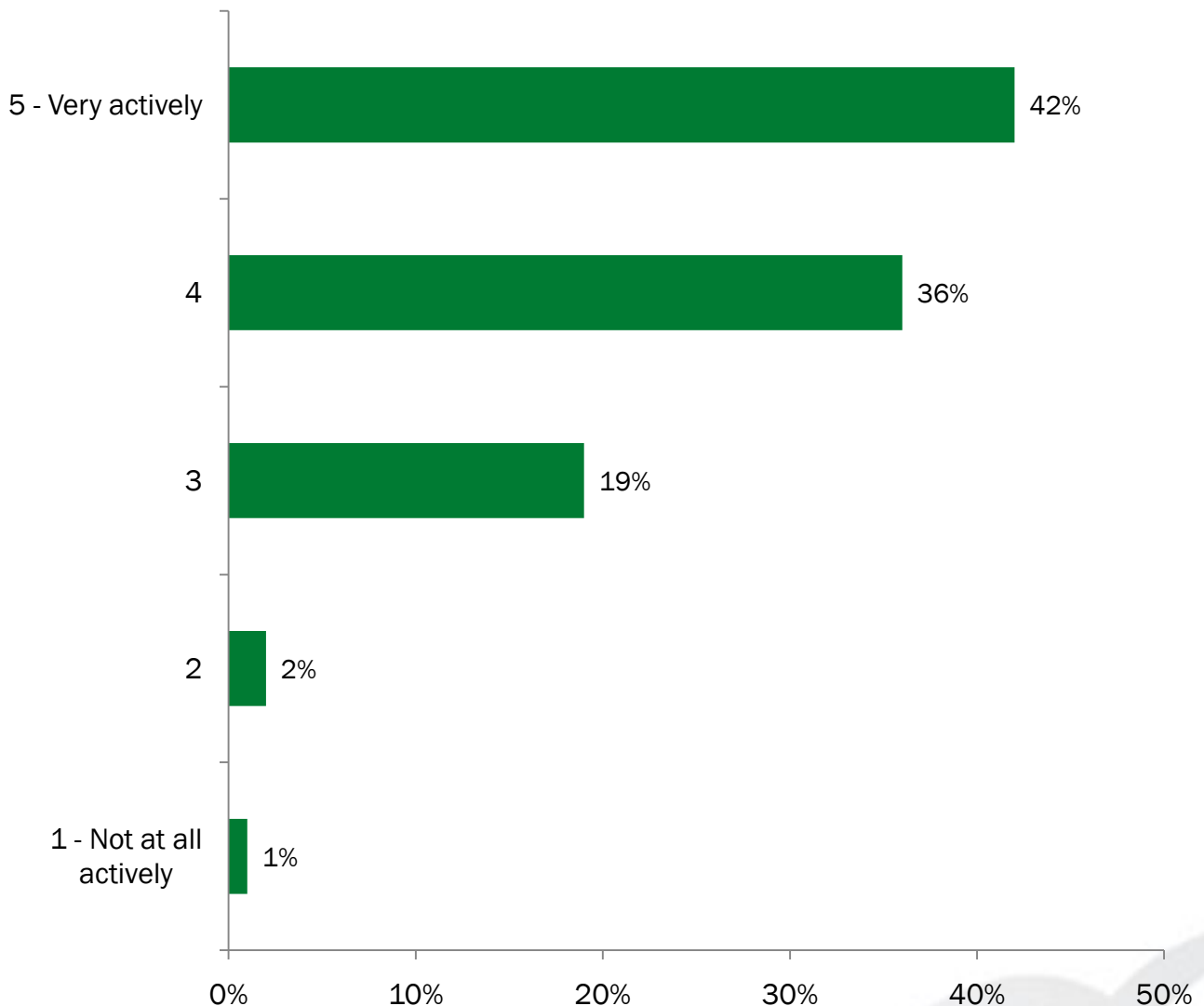


The main reason people are interested in saving energy is to save money, but there are other reasons as well. Which one is most important to you personally?

- Aside from monetary reasons, energy independence is by far the most frequently identified reason for saving energy.
- Younger members are much more likely to mention reducing pollution from power plants as an important reason than are older members.

How Actively Household Works to Keep Electricity Bill Low

Mean = 4.15

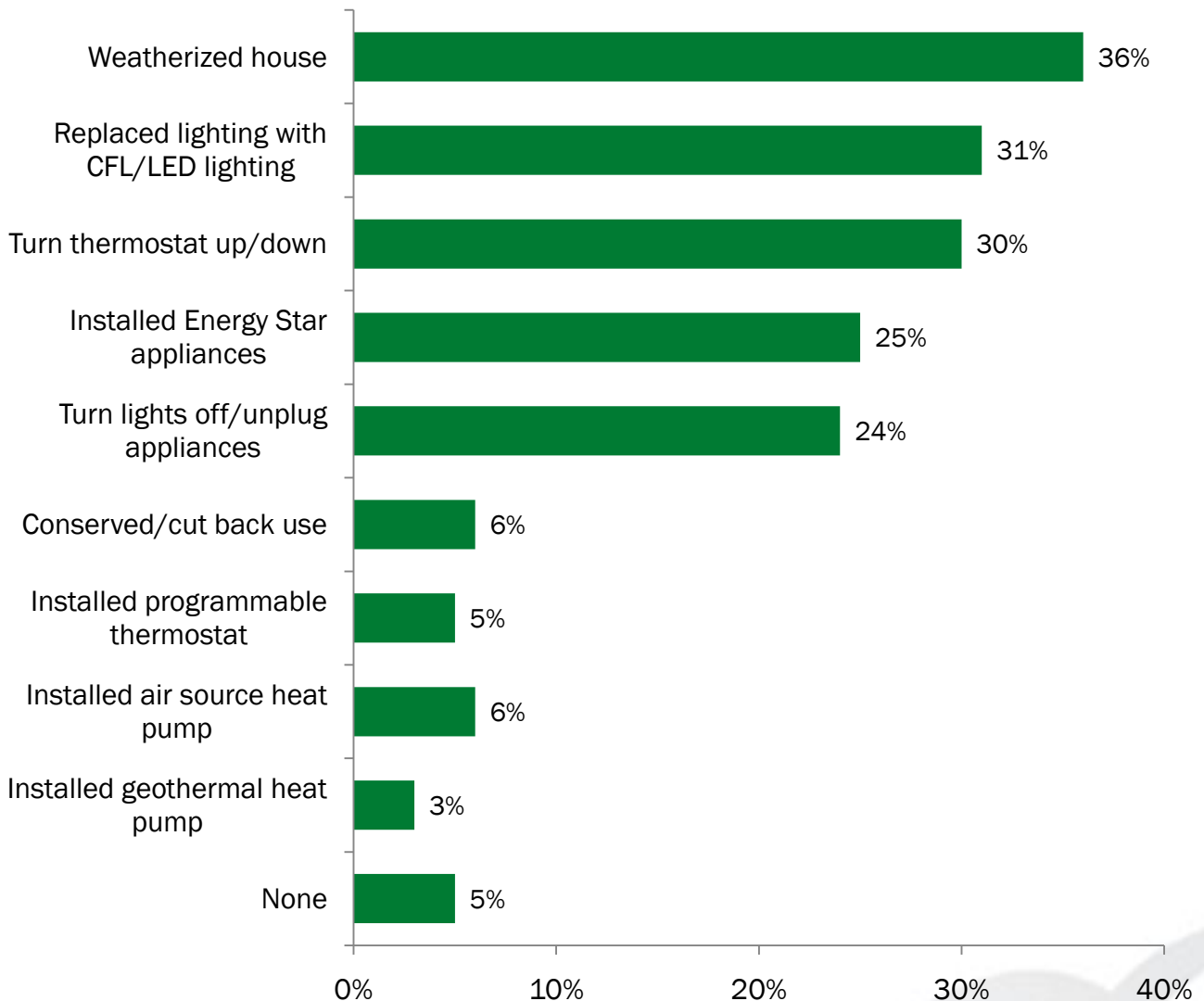


Generally speaking, how actively would you say your household works to keep your electricity bill low?

- More than three-quarters report working hard to keep their household electricity bills low.
- Those working more actively to minimize their electric use, those whose electric bill has a bigger impact on their budget, those paying lower monthly electric bills, older members, less affluent members, retired members, those living alone or with one other person, and those expressing a higher level of concern about the energy situation are much more actively working to reduce their electric bill than are their counterparts.

Energy Efficiency Step(s) Have Taken

Asked of Those Giving “3” Rating or Higher, n = 480

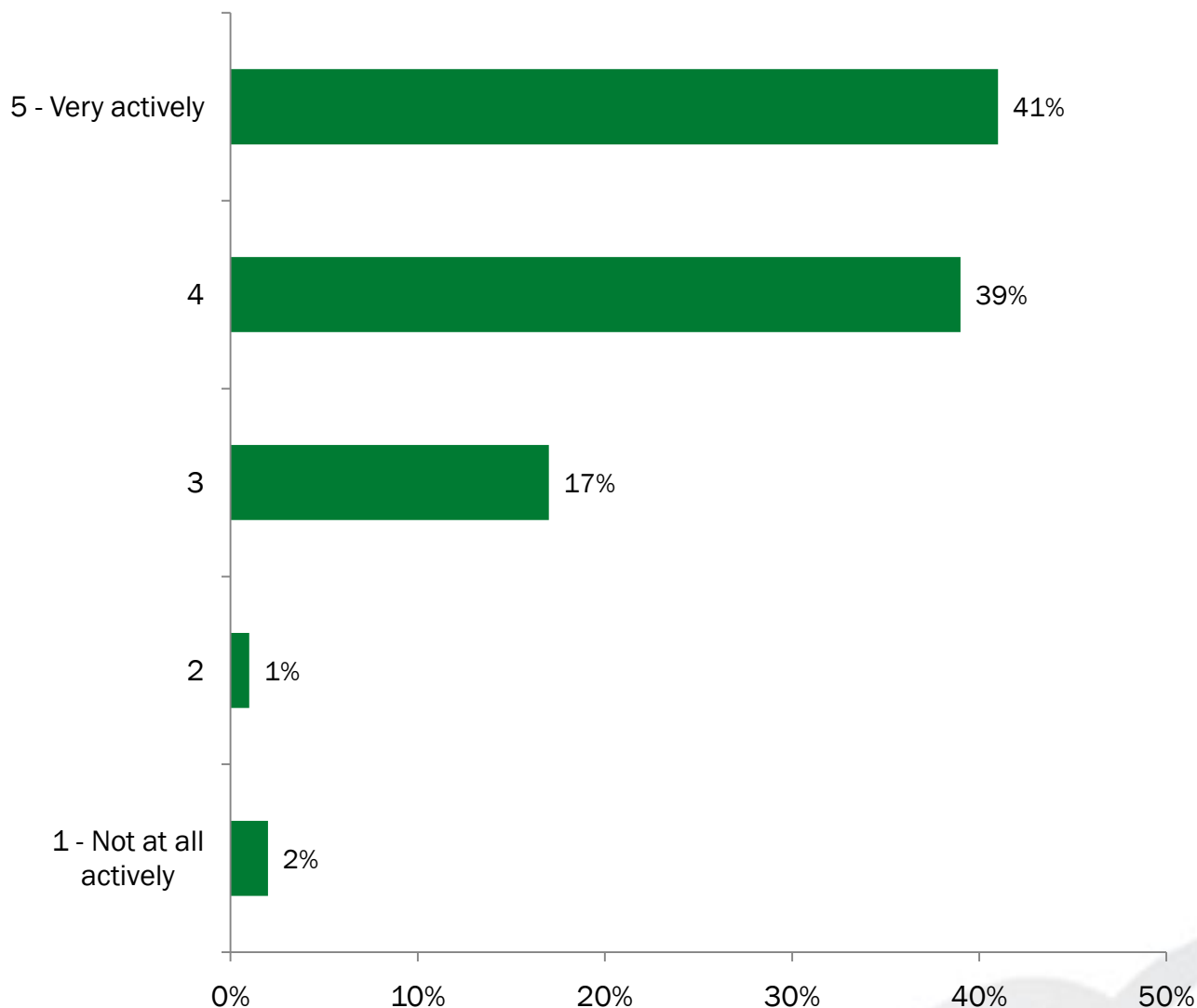


What type(s) of energy efficiency steps have you taken?

- Almost all (95%) have taken at least one energy efficiency measure in their home, with weatherizing, installing CFL/LED lighting, and adjusting thermostats most frequently mentioned.
- Affluent members are much more likely to have installed a programmable thermostat. Younger members are more likely to have purchased Energy Star appliances and/or adjusted their thermostat.

How Actively Co-op is Working to Address Energy Efficiency and Conservation

Mean = 4.14

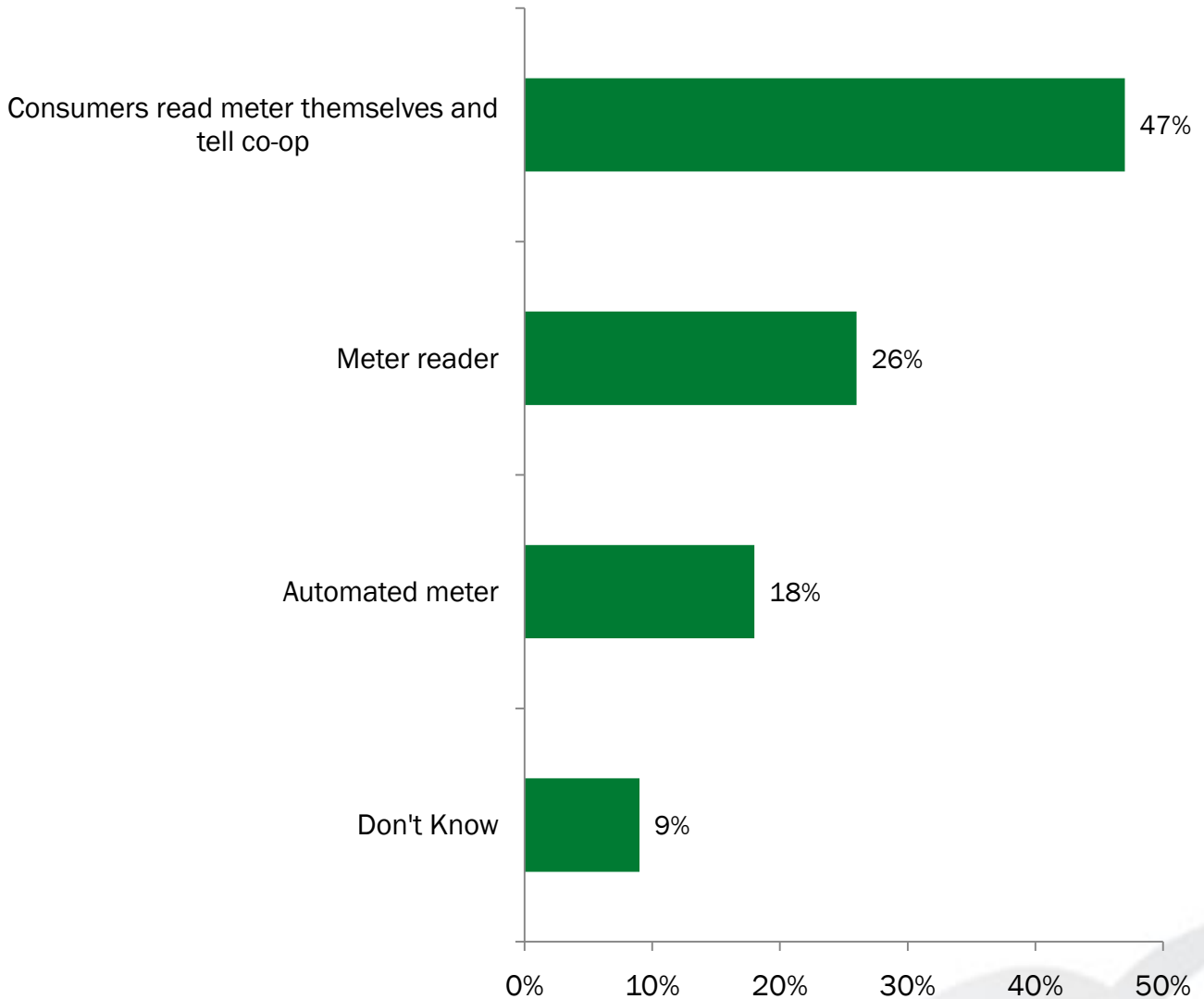


How actively do you feel your cooperative is working to address energy efficiency and conservation?

- Eighty percent feel their co-op is actively or very actively addressing energy efficiency and conservation.
- Those with member identity, those with lower electricity bills, older members, less affluent members, those in smaller households, and retired members give higher ratings for their co-op's conservation efforts than do their counterparts.

Perceptions of New Meters

Current Method Used To Read Electric Meters



Do you know how your electric company reads your meters?

- Almost half (47%) read their own meters, while one in four have a meter reader and one in five have an automated meter.
- Methods vary greatly by cooperative – one has automated meters, one relies primarily on meter readers, and ask their consumers to read their own meter.

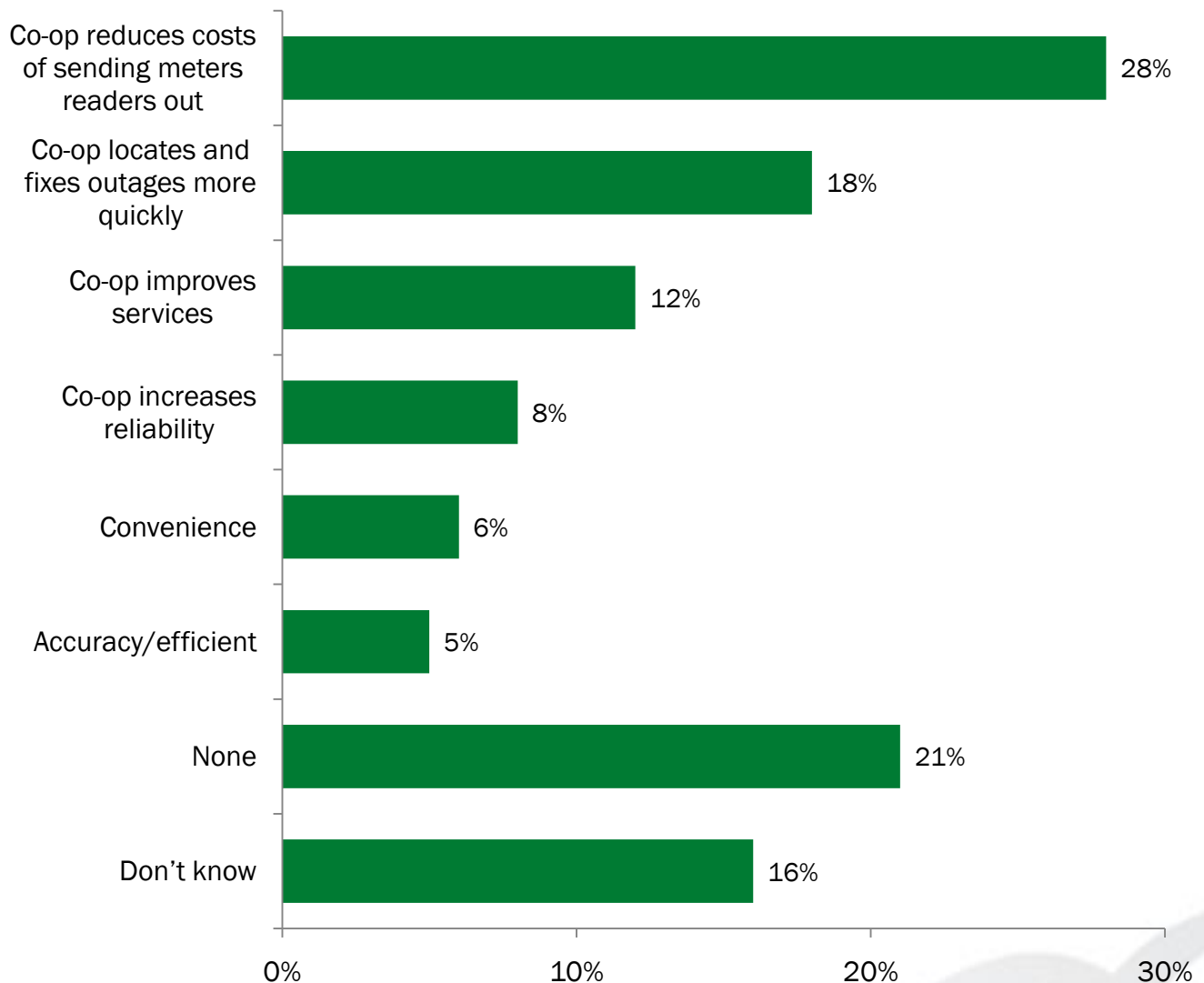
New Meter Explanation Read to Participants

Across the nation, electric utilities are using communication and automation technologies to improve service, increase reliability and help to control electricity costs. Installing new meters that can digitally transmit usage information back to the utility can help the utility locate outages faster and more precisely – sometimes before the consumer knows his power is out – and restore power more quickly. Also, because the meters can be read remotely, the utility will not need to send an employee out to each home to read the meter.

Respondents were then asked to identify what, if any, benefits they ascribed to the new meters.

Unaided Assessment of Benefits of New Meters

Multiple Responses Possible

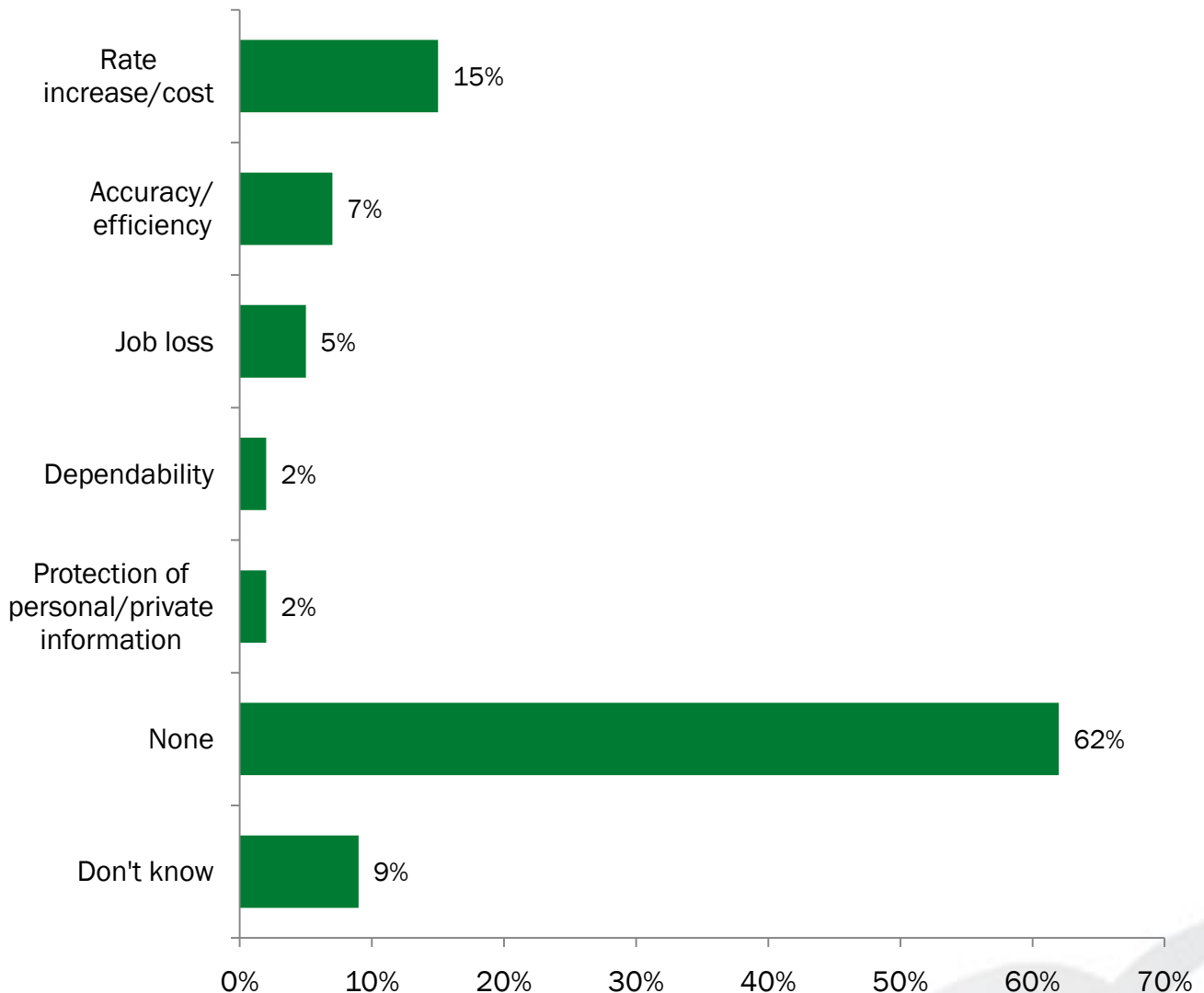


What benefits, if any, do you see with changing to these new meters?

- Benefits of the new meters identified most frequently on an unaided basis are the co-op reducing costs by not sending out meter readers (28%) and the meters enabling the co-op to locate and fix power outages more quickly (18%). Still, 37% did not volunteer a benefit of the new meters when asked.
- Younger members are much more likely to have identified a benefit than older members.
- As would be expected, those who mention having concerns about the new meters are the least likely to mention a benefit of having them.

Concerns Expressed About Change to New Meters

Multiple Responses Possible

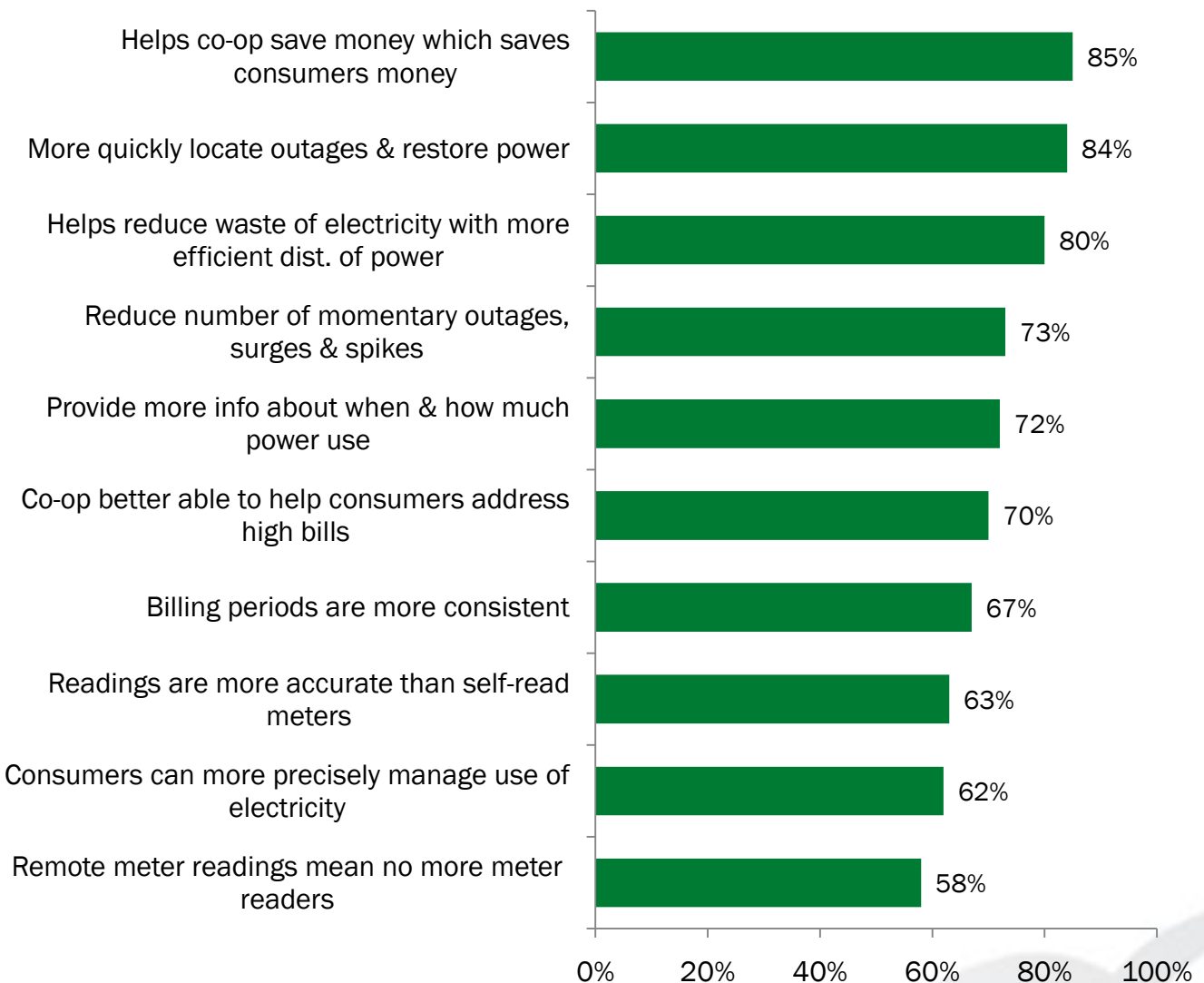


What concerns, if any, do you have about changing to new meters?

- Seventy-one percent did not mention any concerns about the new meters.
- Fifteen percent mentioned the cost/rate increase – twice as many as any other concern.
- Younger members, those working full- or part-time, those paying lower electric bills, newer members, and those living in larger households are much more likely to have mentioned a concern.

Consumer Assessment of New Meter Benefits

“4” and “5” Ratings Graphed

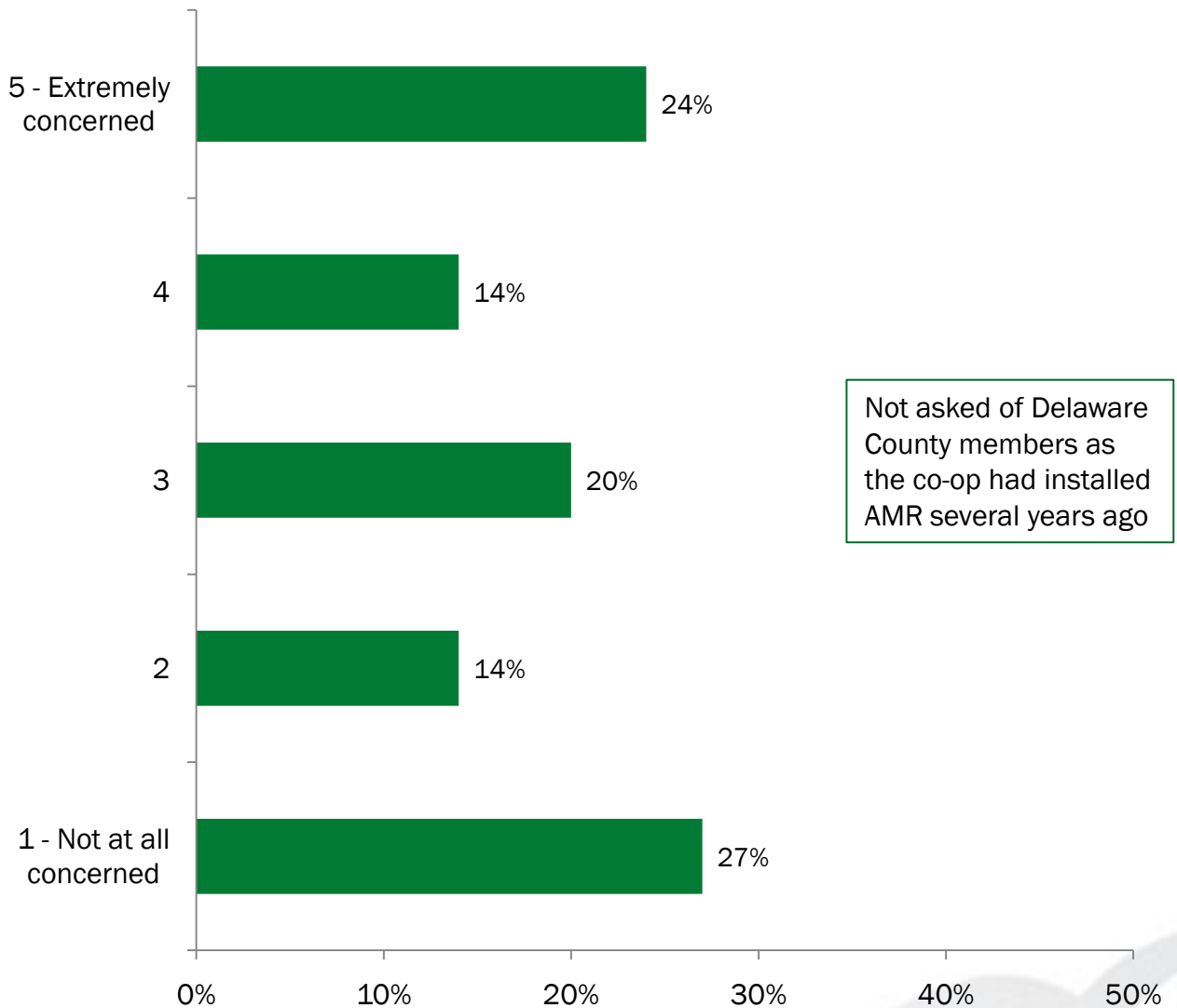


How important is the following statement to you using a five-point scale where one is “not at all important” and five is “very important”?

- The primary benefits identified by consumers are helping the co-op and the consumers save money, more quickly locating outages, and reducing waste of electricity. Secondary benefits are improved power quality, providing more information on energy use, helping members address their high bills, and having more consistent billing periods.
- Generally, females, less affluent members, and retired members place higher importance on the new meter benefits than do males, those working, or more affluent members.

Level of Concern About Security of Use Data Transmitted from New Meter To Co-op

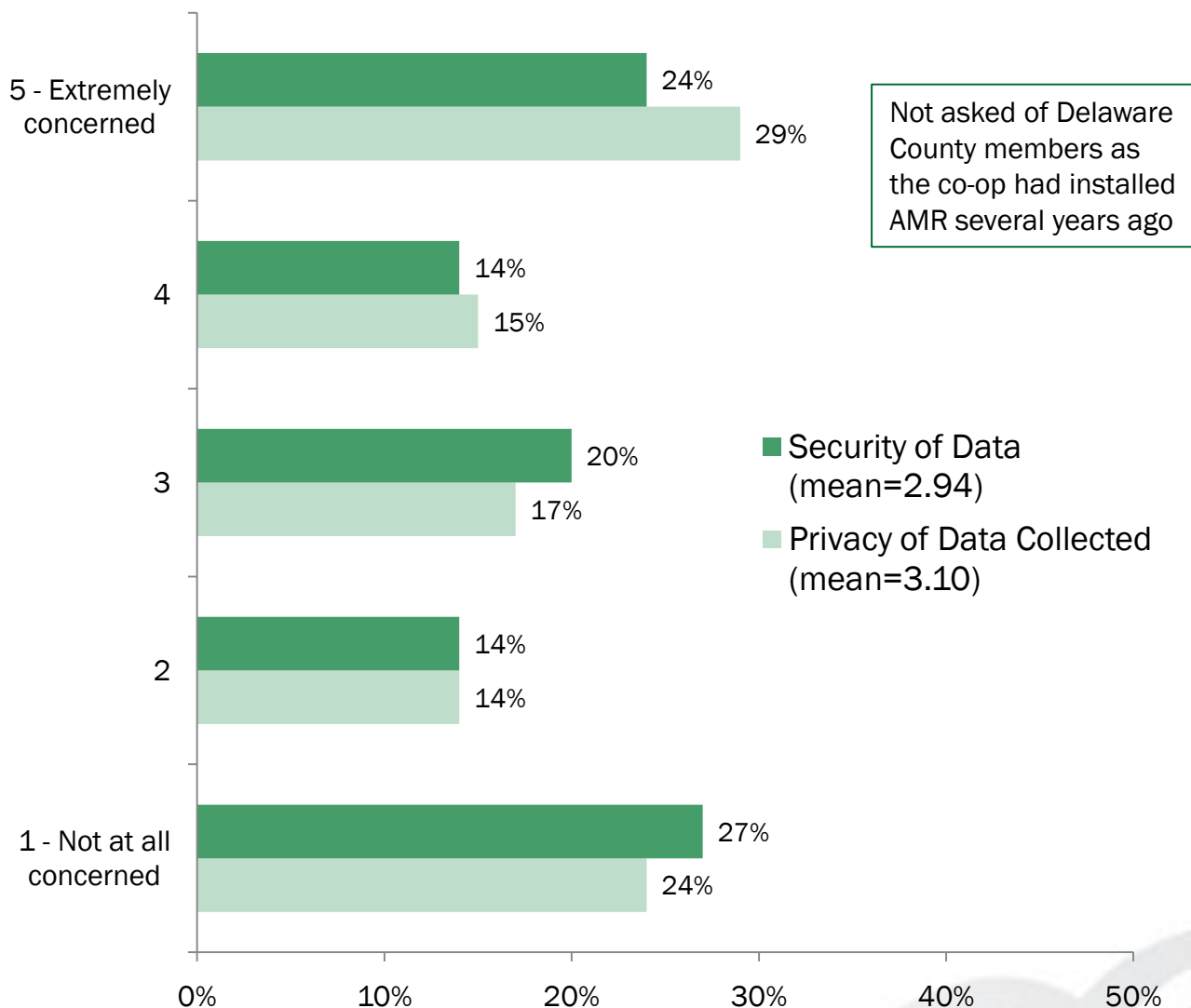
Mean = 2.94



New electric meter technologies can collect more detailed information about your electricity use patterns that could help you identify savings on your bill. How concerned would you say you are about the privacy of the data collected and stored by the co-op?

- Thirty-eight percent are concerned or very concerned about the security of their data being transmitted from the new meter to their cooperative while 41% have little or no concern.
- Those dissatisfied with their co-op and those concerned about the energy situation are much more concerned than are their counterparts about the security of their data.
- There are no significant differences based on age, income, or gender.

Level of Concern About Security of Electric Use Data and Privacy Data Collected/Stored by Co-op

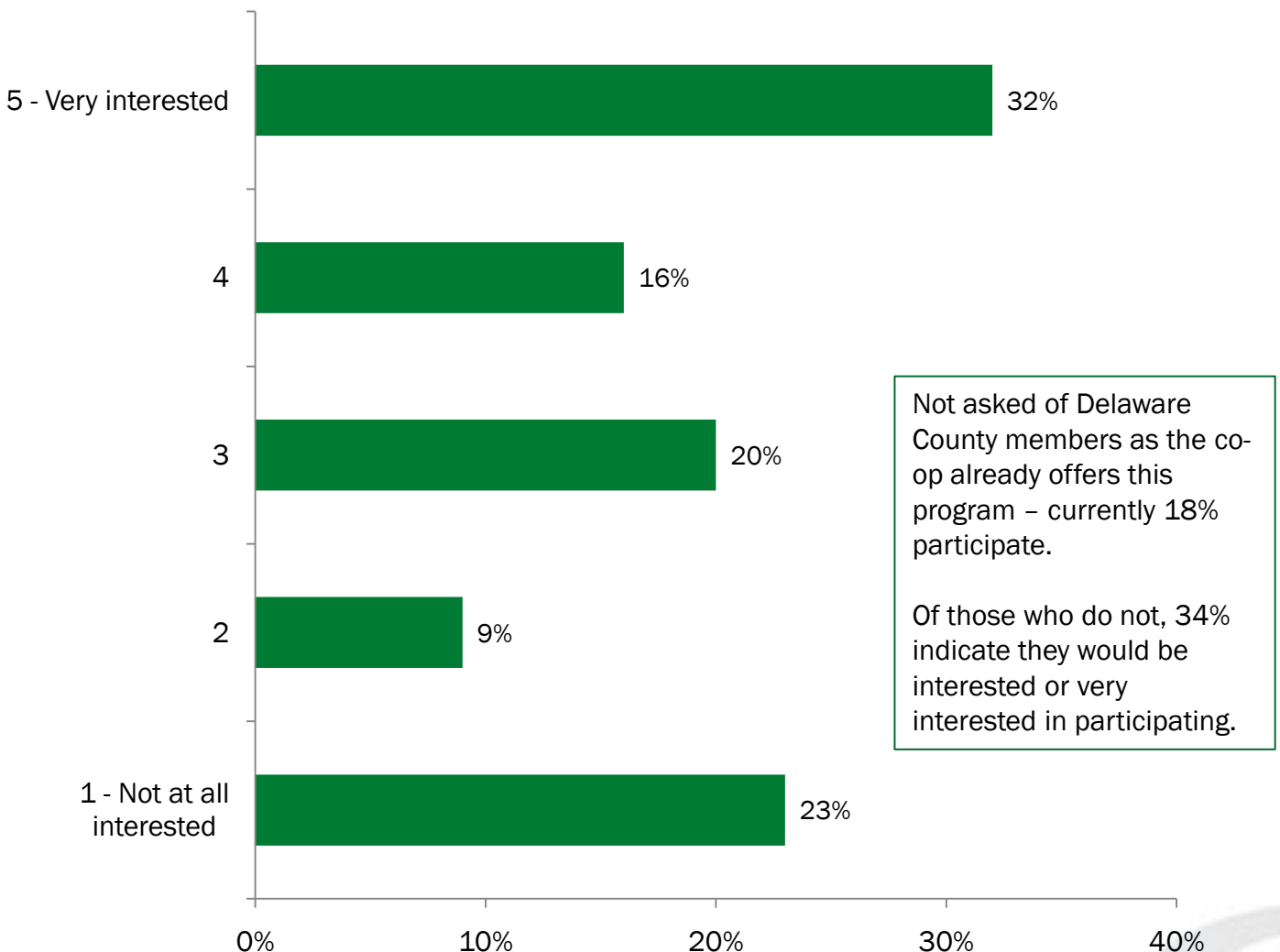


New electric meter technologies digitally transmit data from your home to the electric utility. Some people are concerned that the new technologies might put their privacy at risk. Your co-op believes strongly in protecting information about your electricity usage. How concerned would you say you are about the security of your electricity use data as it is transmitted from the new meter to the co-op? **New electric meter technologies can collect more detailed information about your electricity use patterns that could help you identify savings on your bill.** How concerned would you say you are about the privacy of the data collected and stored by the co-op?

- Fully 44% are concerned about the privacy of the data collected and stored by the co-op, while 38% express little or no concern.
- Concern is highest among less affluent members, those paying higher electric bills, those with a higher level of concern about the energy situation, and those whose electric bills have the biggest impact on their budget.

Level of Interest in Demand Response Program

Mean = 3.24

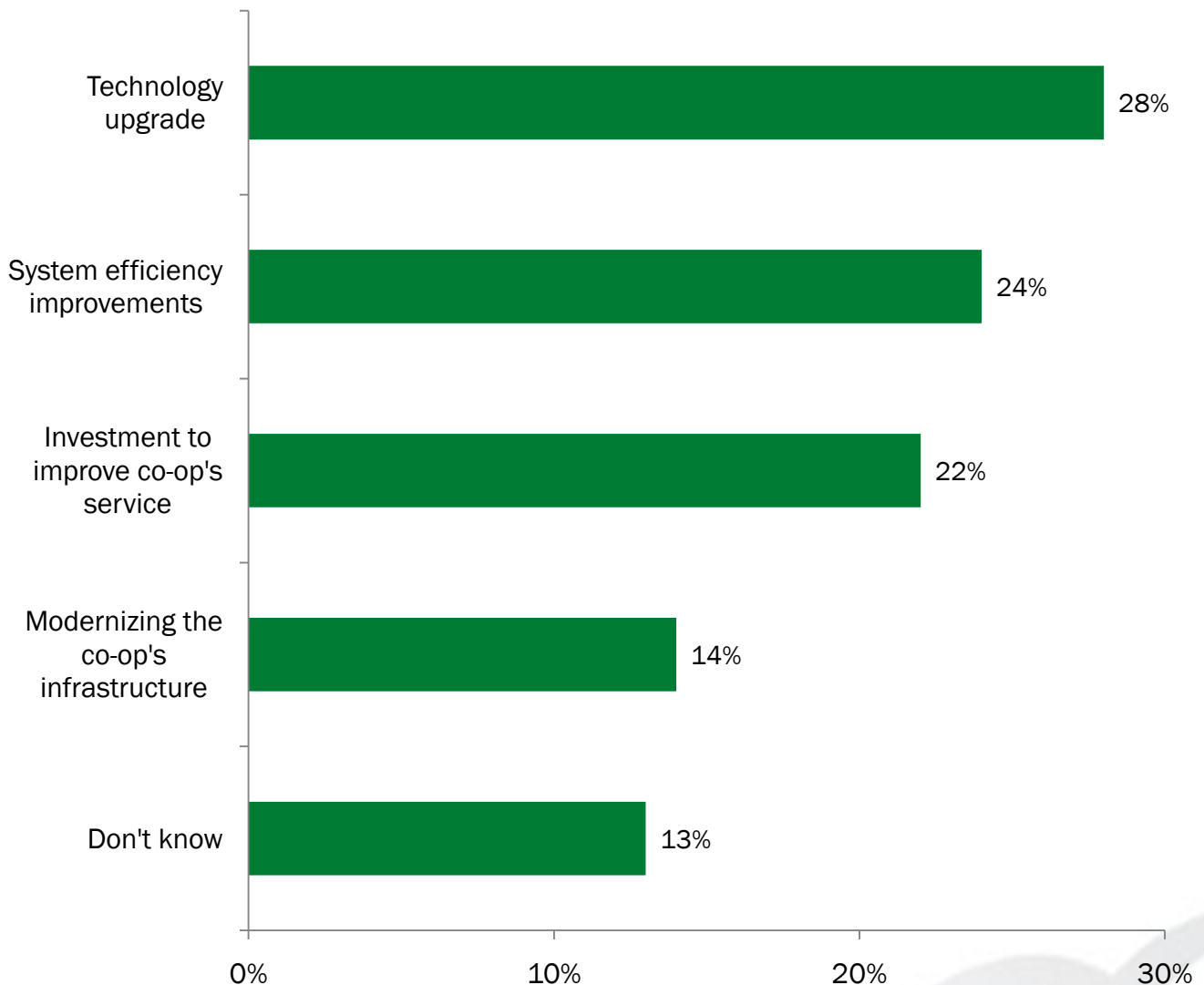


Many electric cooperatives are saving their consumer members money by using new technology to control their electric load during peak periods when the costs of electricity are highest for the utility and its consumers. Power costs during a peak period can be as much as ten times higher than off-peak times. These programs are voluntary, and consumers usually receive an incentive in exchange for allowing the co-op to shut off certain appliances for short periods when there is very high demand for power. If the co-op can reduce the demand for electricity during these periods, this usually leads to significant operational savings. How interested would you be in participating in a program like this?

- Almost half indicate they are interested or very interested in participating in a demand response program through their co-op. One-third indicate they are not interested or not at all interested.
- Interest is highest among those most concerned about the current energy situation.
- There are no differences based on the impact their bill has on their family budget.

Preferred Messages/Terms

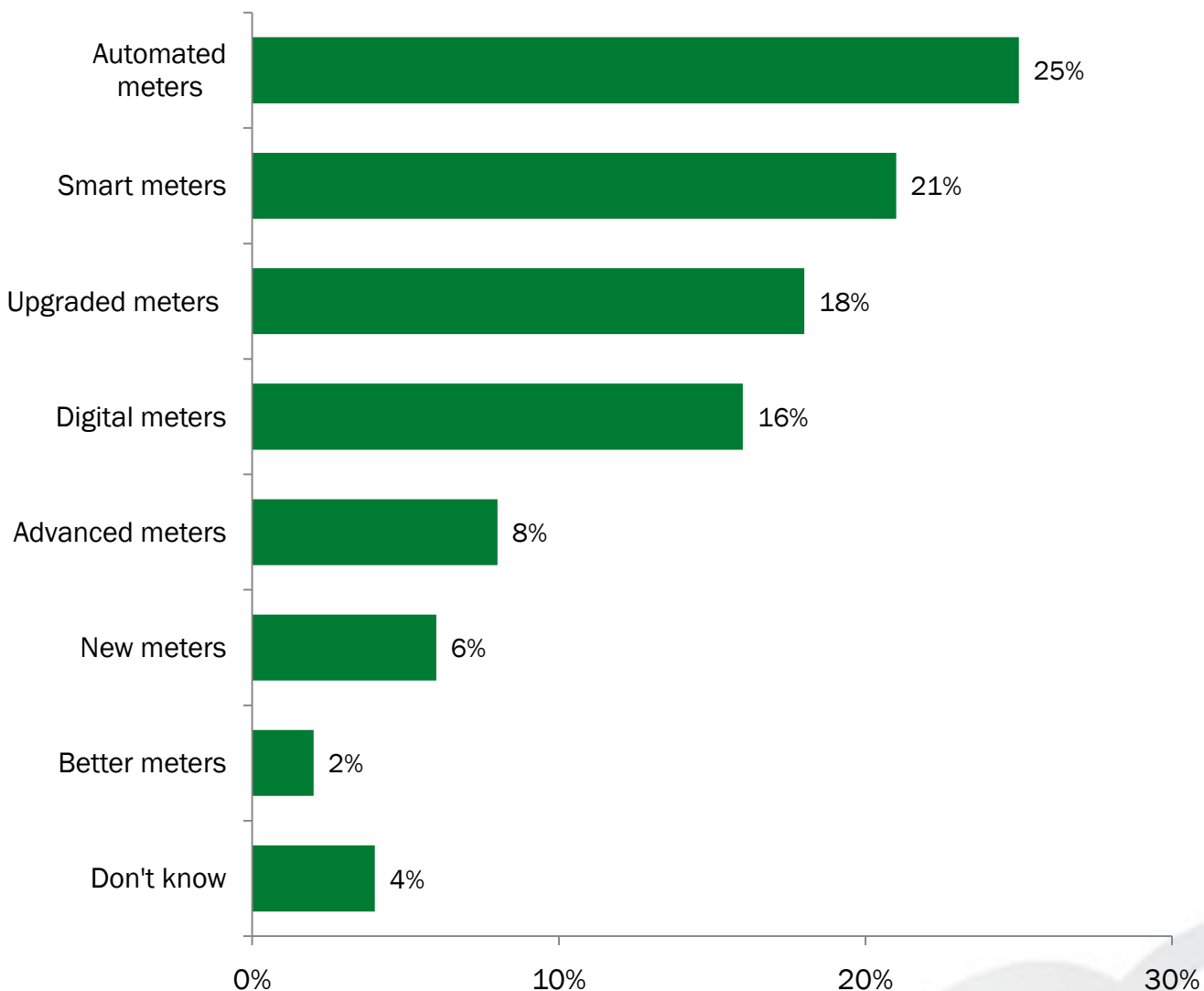
Consumer Reactions to Different Process Descriptions



Which of the following would you think would be the best way to refer to the process of replacing these meters if the co-op was installing them?

- Respondents prefer “technology upgrade”, “system efficiency improvements”, or “investment to improve the co-op’s service” to describe the installation of the new meters. Only 14% mention “modernizing the co-op’s infrastructure”.
- Interestingly, there are no significant differences in preferences based on age, gender, income, or tenure.

Consumer Preference for Describing Meters

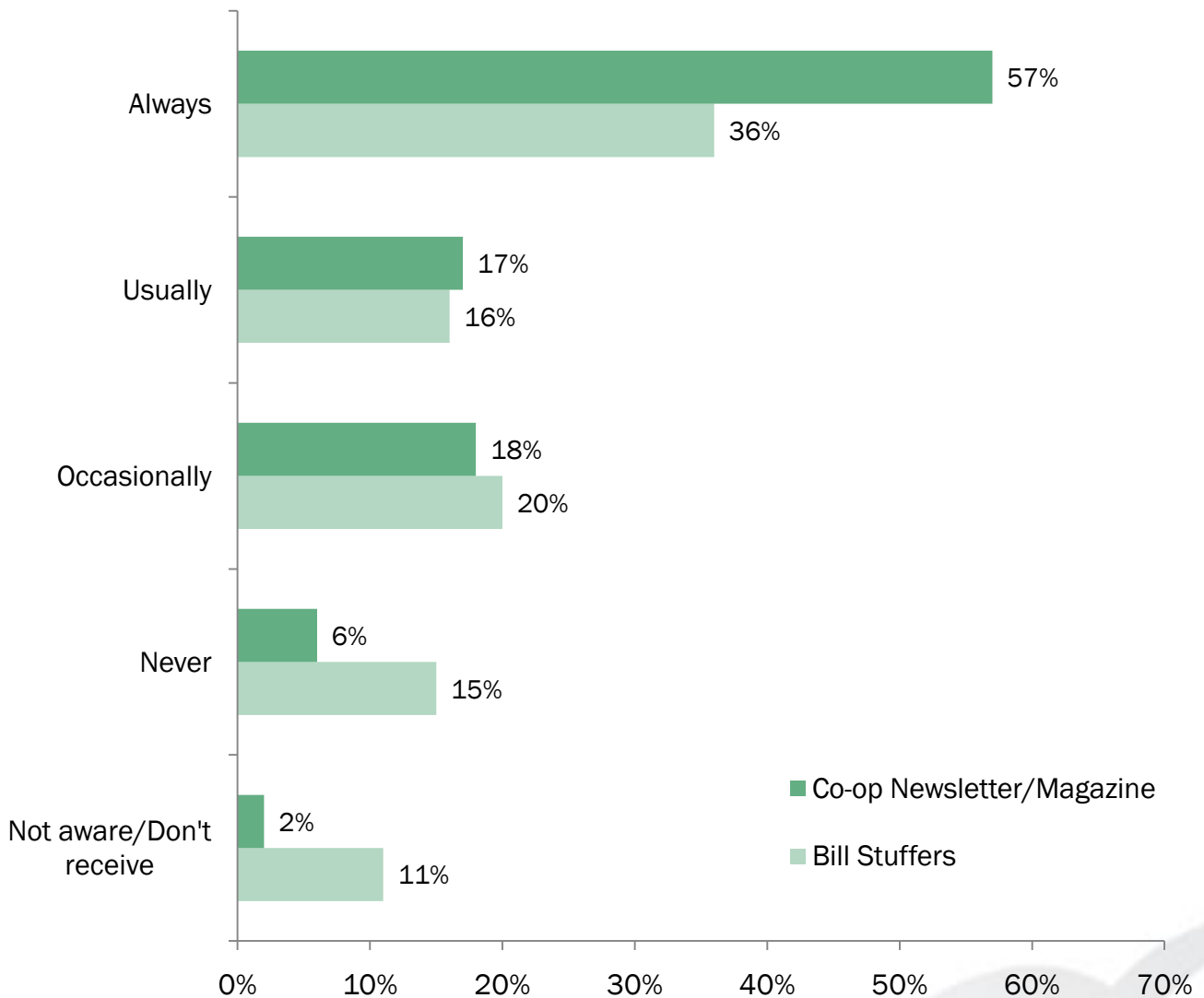


These meters have been called many different things. Which of the following do you think would be best when talking about these meters to the average consumer?

- Members like the term “automated meters” best, followed by “smart meters”, “upgraded meters”, or “digital meters”. “Advanced meters”, “new meters”, and “better meters” are not as appealing as the other choices.
- “Smart meters” has more appeal among younger members than among older members.

Communications

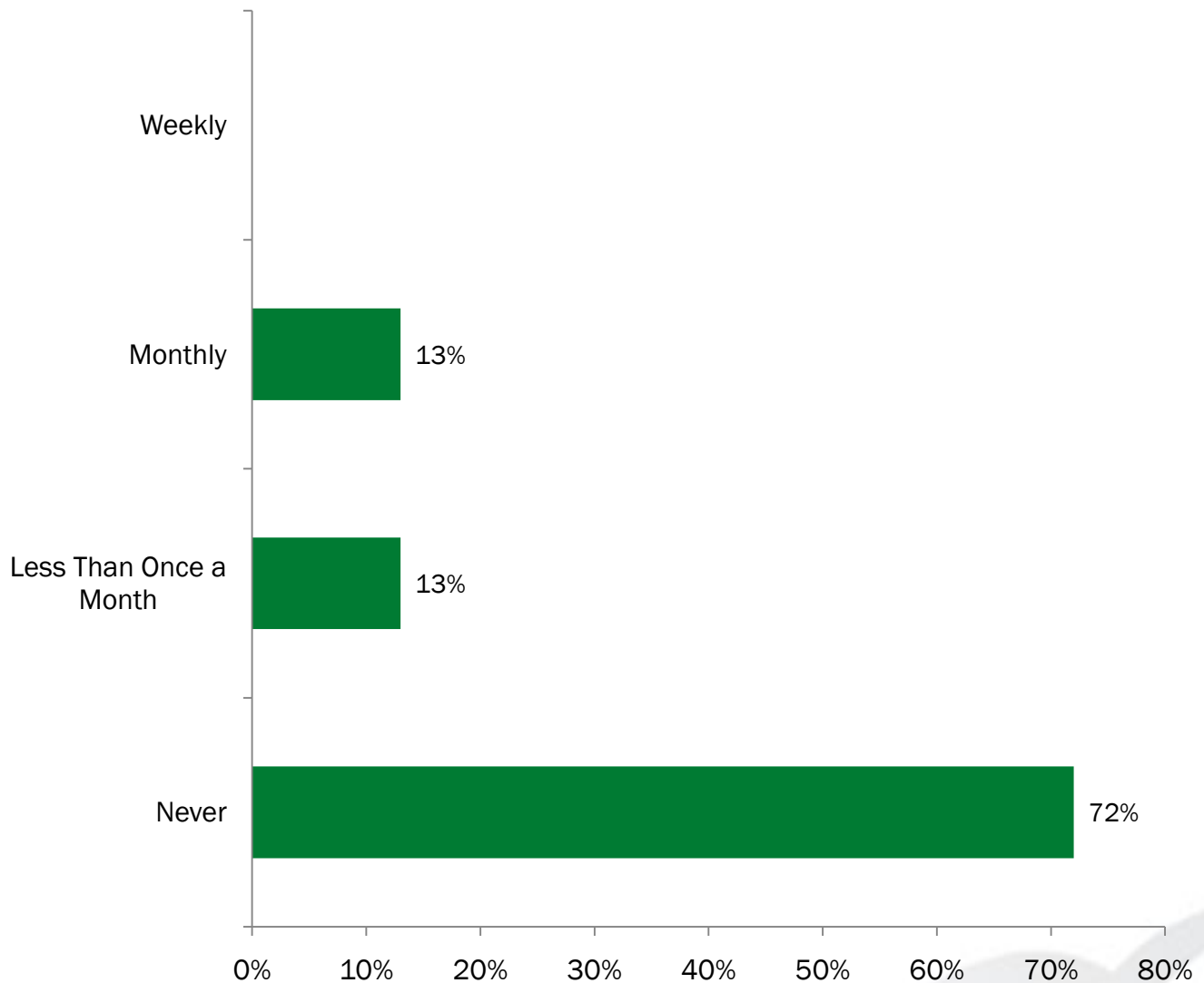
Readership of Co-op Communications



How often do you read the co-op newsletter/magazine? How often do you read stuffers that come with your monthly electric bill?

- Three-quarters indicate they usually or always read the cooperative newsletter or magazine. Half report they regularly read bill stuffers.
- Readership is higher among older members and those with lower monthly electric bills.

Frequency of Visiting Co-op Website

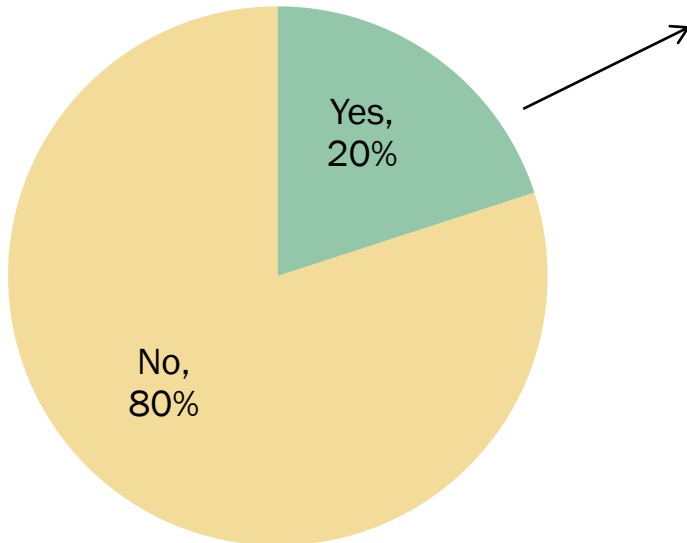


How frequently do you visit the co-op website?

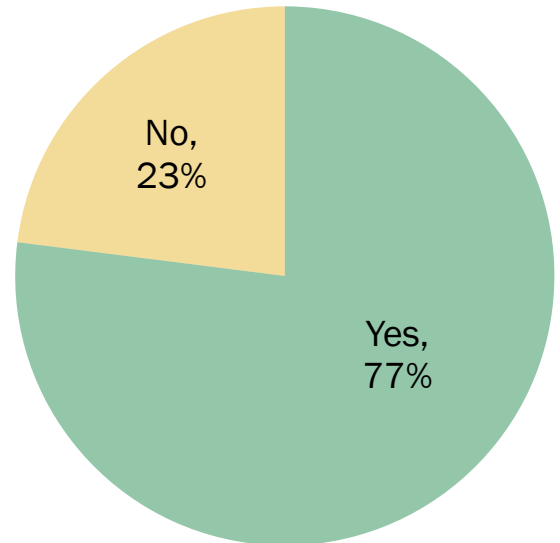
- Just over one-quarter indicate they occasionally visit their cooperative's website. Responses vary by cooperative and range from 15% up to 35%.
- As one would expect, the frequency of visiting the co-op websites is higher among younger and more affluent members.

Online Bill Payment

Pay Bills Online



IF YES: Pay Electric Bill Online

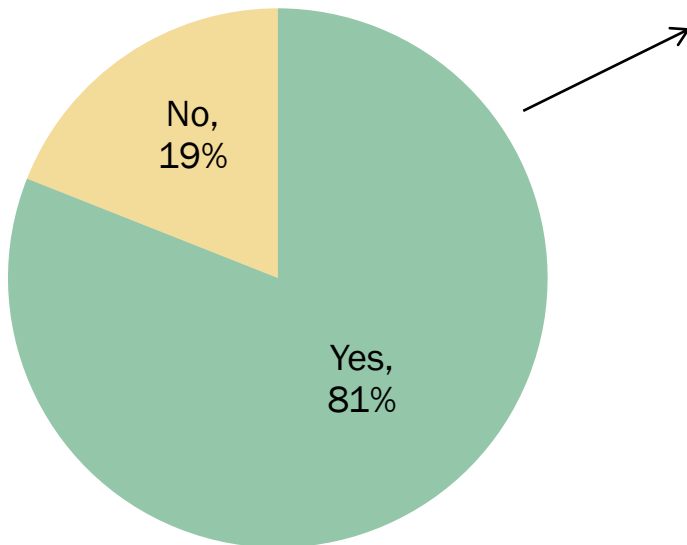


Do you pay bills online? If yes, do you pay your electric bill online?

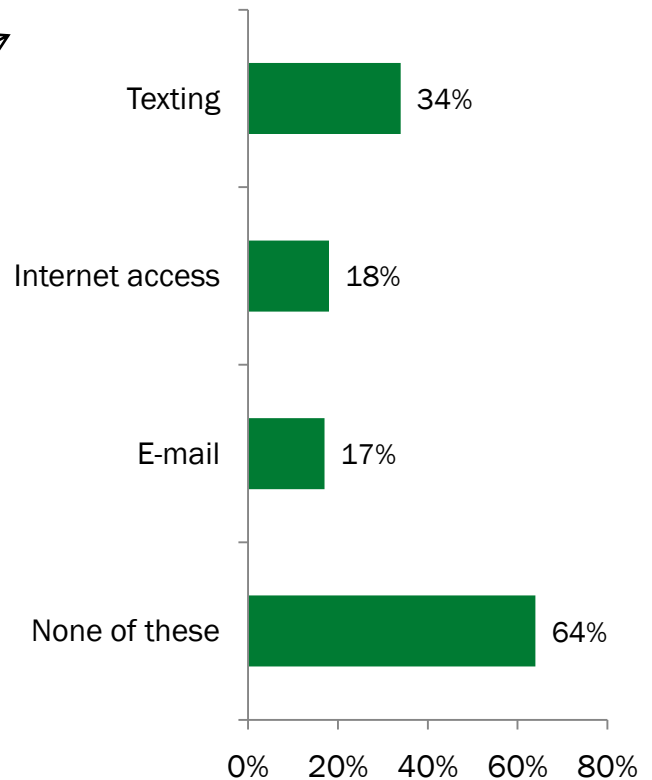
- Just one in five pay bills online, but of those that do, 77% pay their electric bill online.
- Younger members and more affluent members are significantly more likely than are their counterparts to pay bills online.

Mobile Phone

Has Mobile Phone



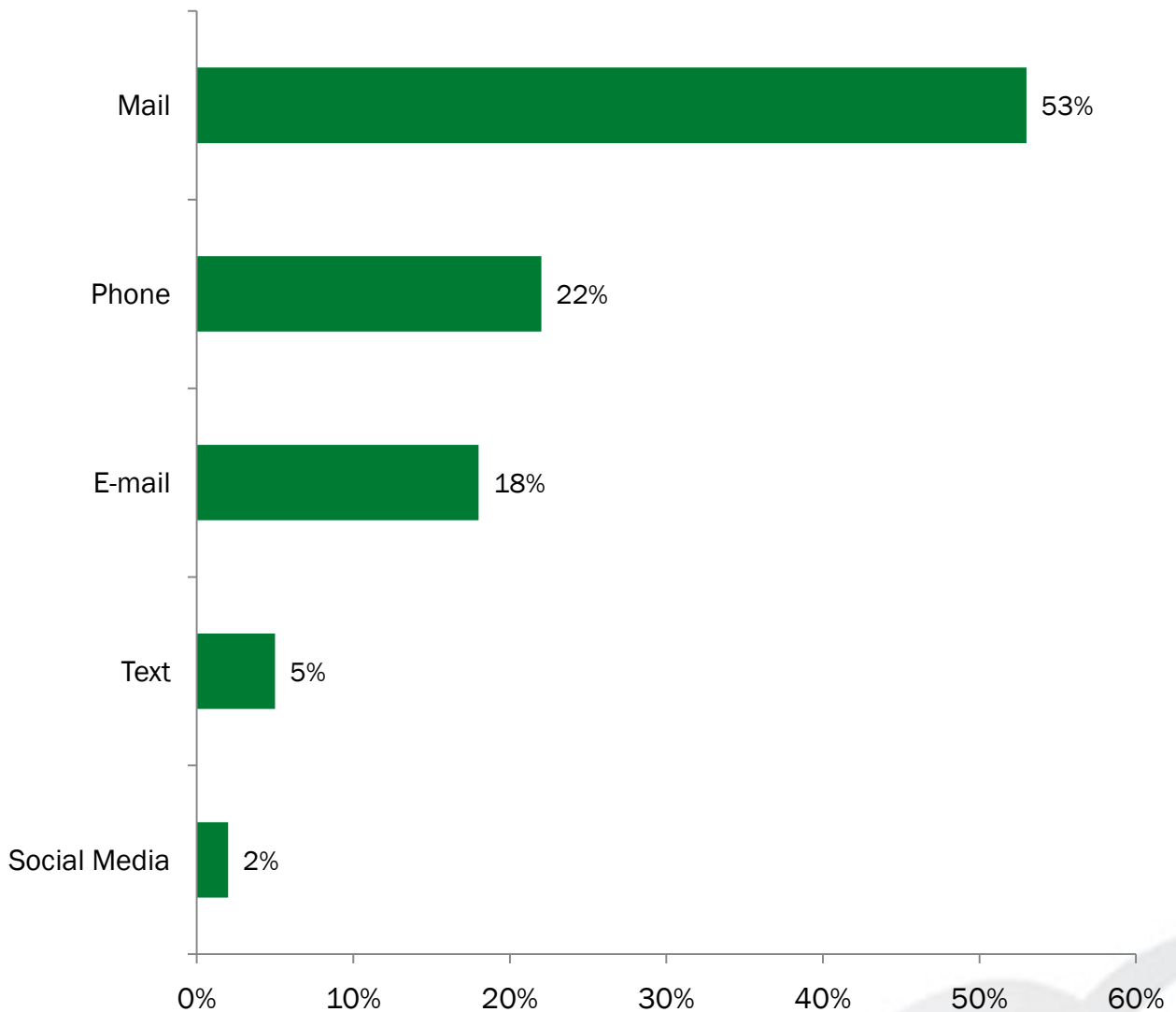
IF YES: Use of Mobile Phone



Do you have a mobile phone? If yes, do you use it for:

- Fully eight in ten (81%) have a mobile phone.
- Almost one in five use their mobile phone for Internet access and e-mail and one-third send/receive text messages on their mobile phone.
- Not surprisingly, the likelihood of both having a mobile phone and using it for more than voice are much higher among those who are younger or more affluent.

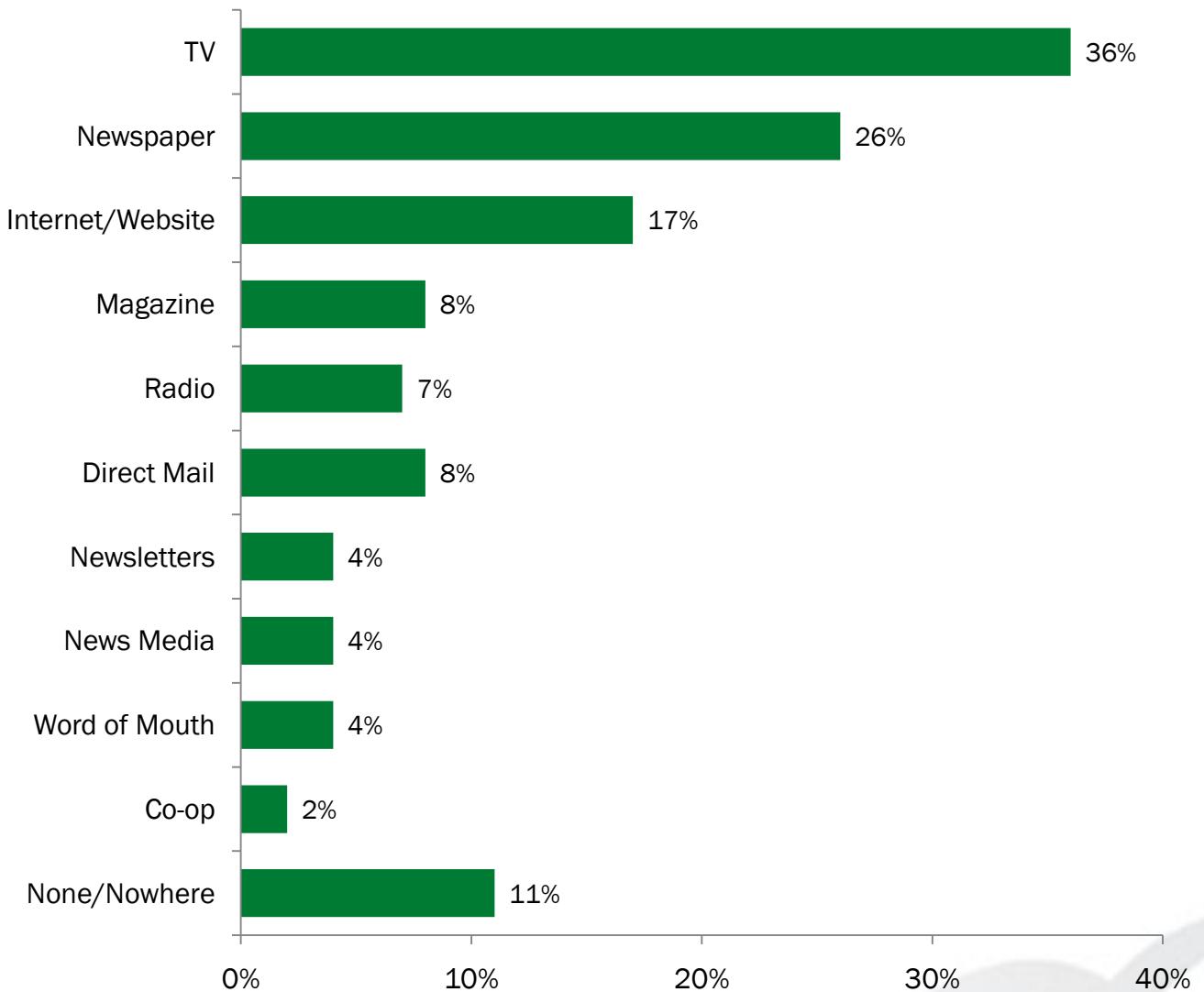
Preferred Method of Receiving Critical Information From Co-op



How would you prefer to receive critical information from your co-op?

- Over half (53%) would prefer to receive information from their cooperative by mail.
- One-fifth prefer phone or e-mail.
- Less affluent, longer-tenured members and/or those with lower bills are much more likely to prefer mail or phone.
- Younger members are the most likely to prefer e-mail, texting, or social media.

Other Sources of Information for News On Energy Issues

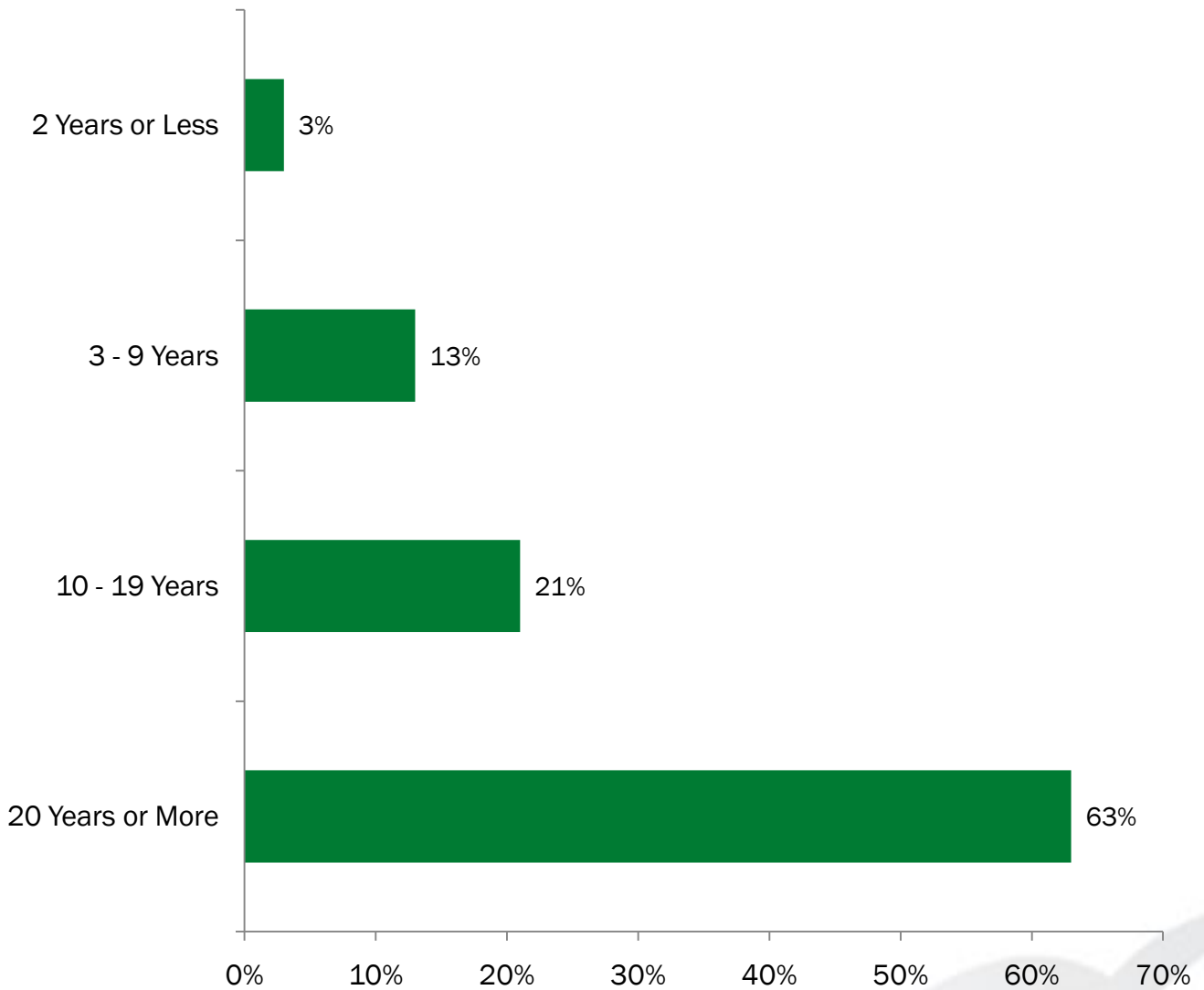


Where else do you get news related to energy issues?

- The primary media sources members use for news on energy issues other than information received from their co-op are TV, newspaper, and the Internet.
- The Internet/websites are significantly more popular among newer members, younger members, more affluent members, those working full- or part-time, and males.
- Direct mail is the most used news source for less affluent members, while those with higher household incomes are the most likely to mention magazines.

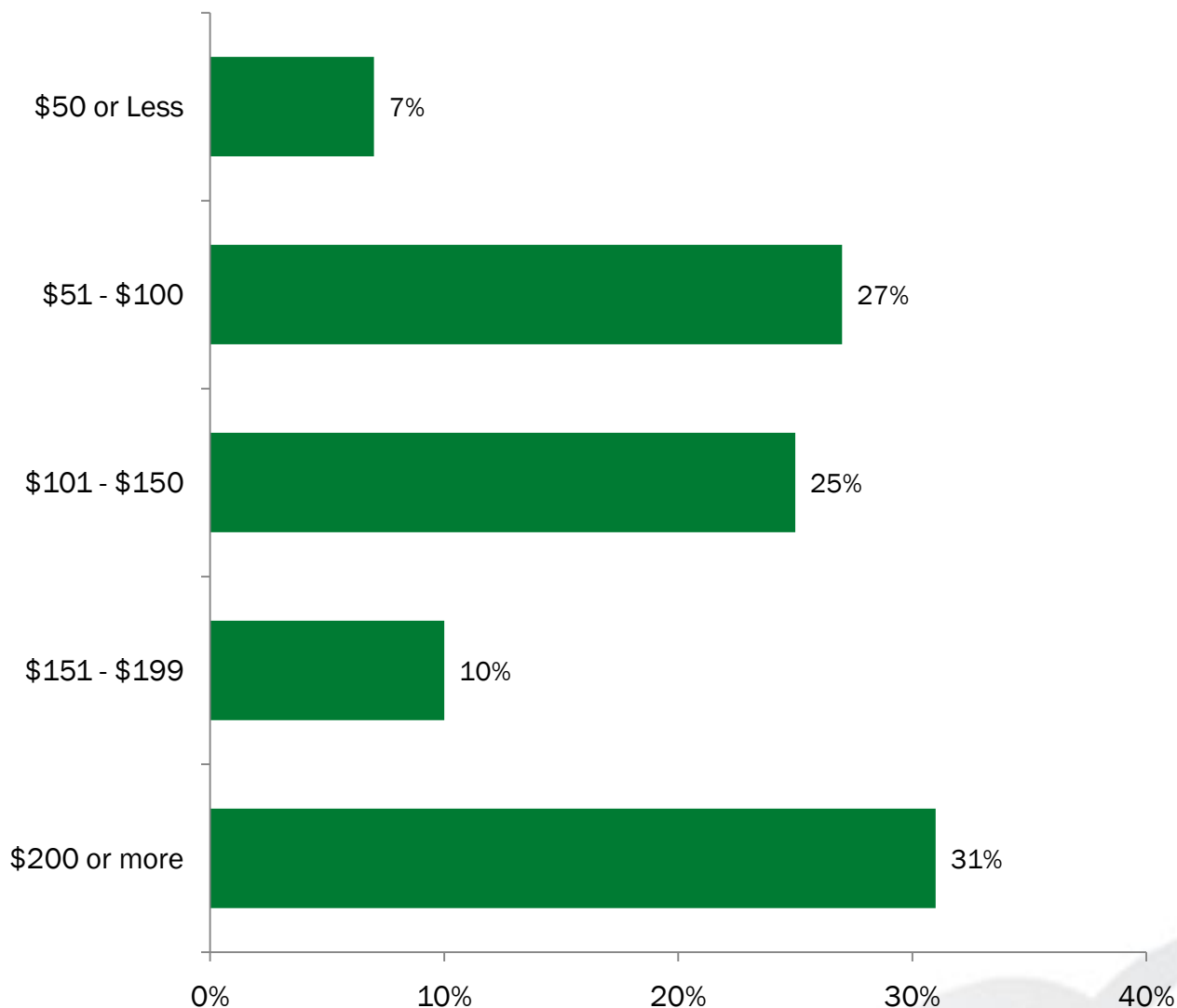
Demographics

Tenure



How long have you received your electric service from your cooperative?

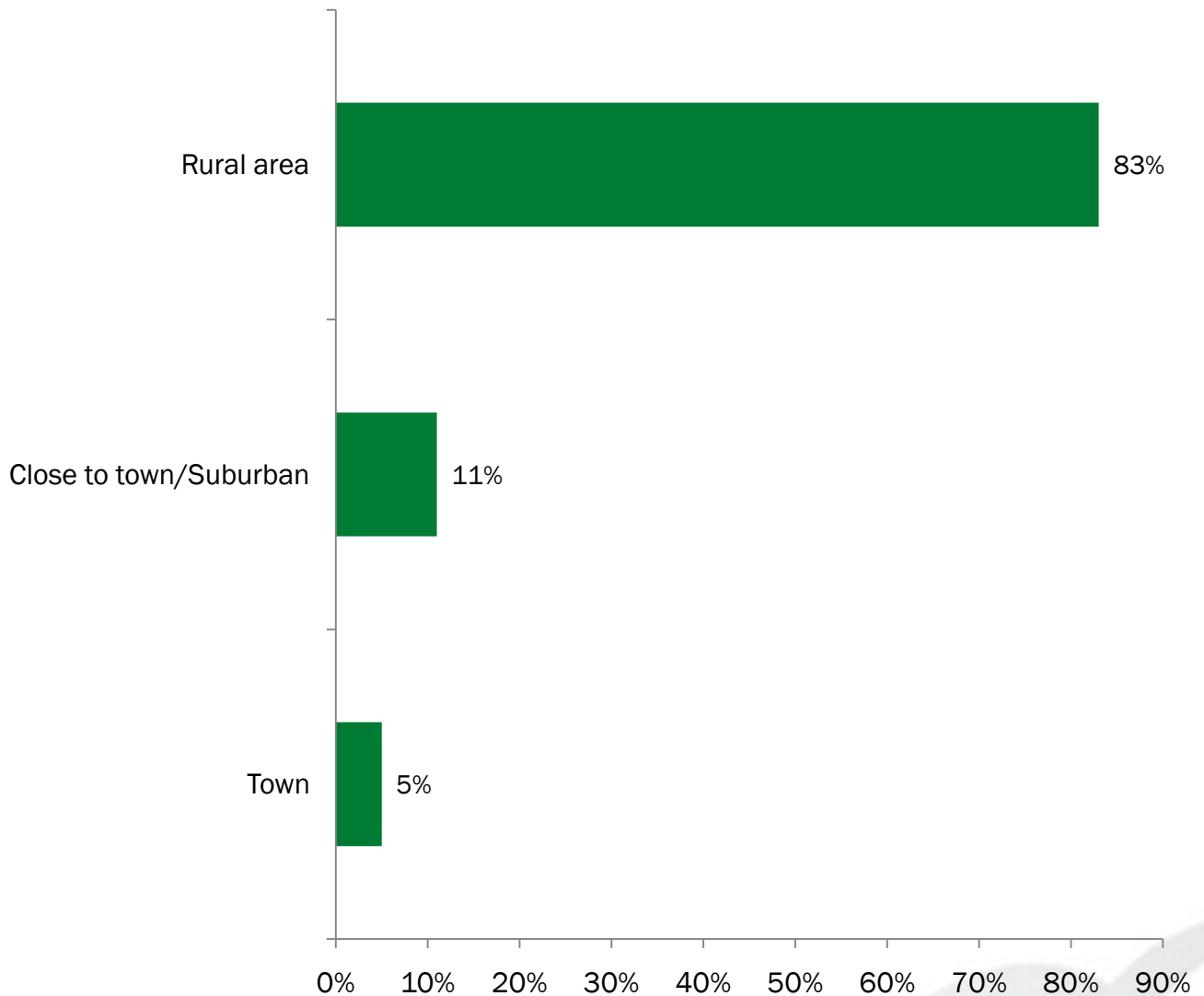
Average Monthly Electric Bill



About how much is your average monthly electric bill?

- Respondents include a good cross-section of electricity bill amounts – fully one-third have monthly amounts of \$100 or less, while almost one-third have bills of \$200 or more.
- The size of the electric bills varies greatly by cooperative – both in the proportion having electric bills of \$100 or less (16% to 60%) and those having the highest (\$200 or more) monthly bills (15% to 42%).

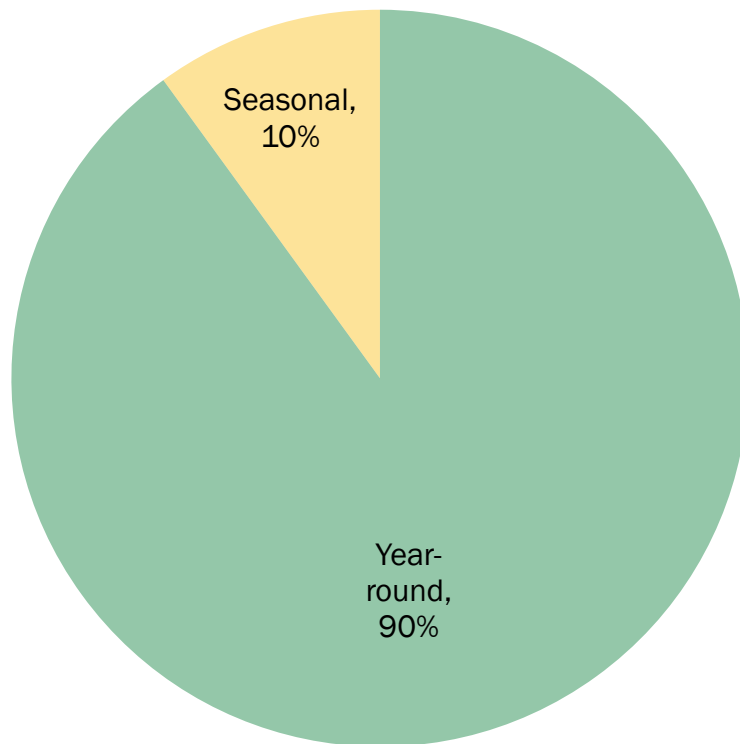
Type of Area



How would you describe the place you live?

- Fewer than one in five interviewed for this study live in a non-rural area.
- This is not unexpected as two of the cooperatives in the study are almost all rural, while two serve some non-rural areas.

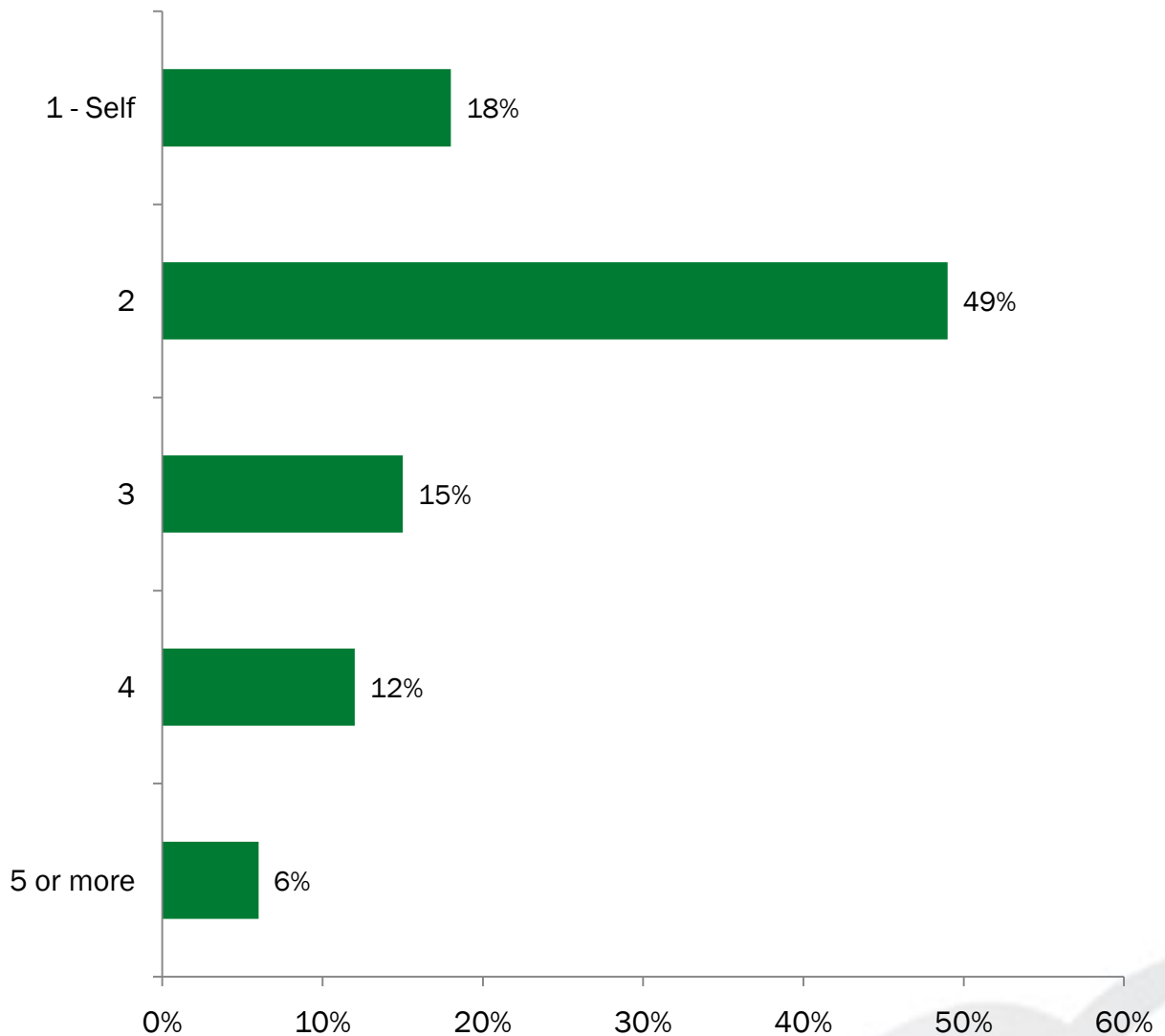
Primary or Seasonal Resident



Do you live in the home served by the co-op year-round or on a seasonal or recreation basis?

- Most (90%) of those interviewed live in their homes year-round.

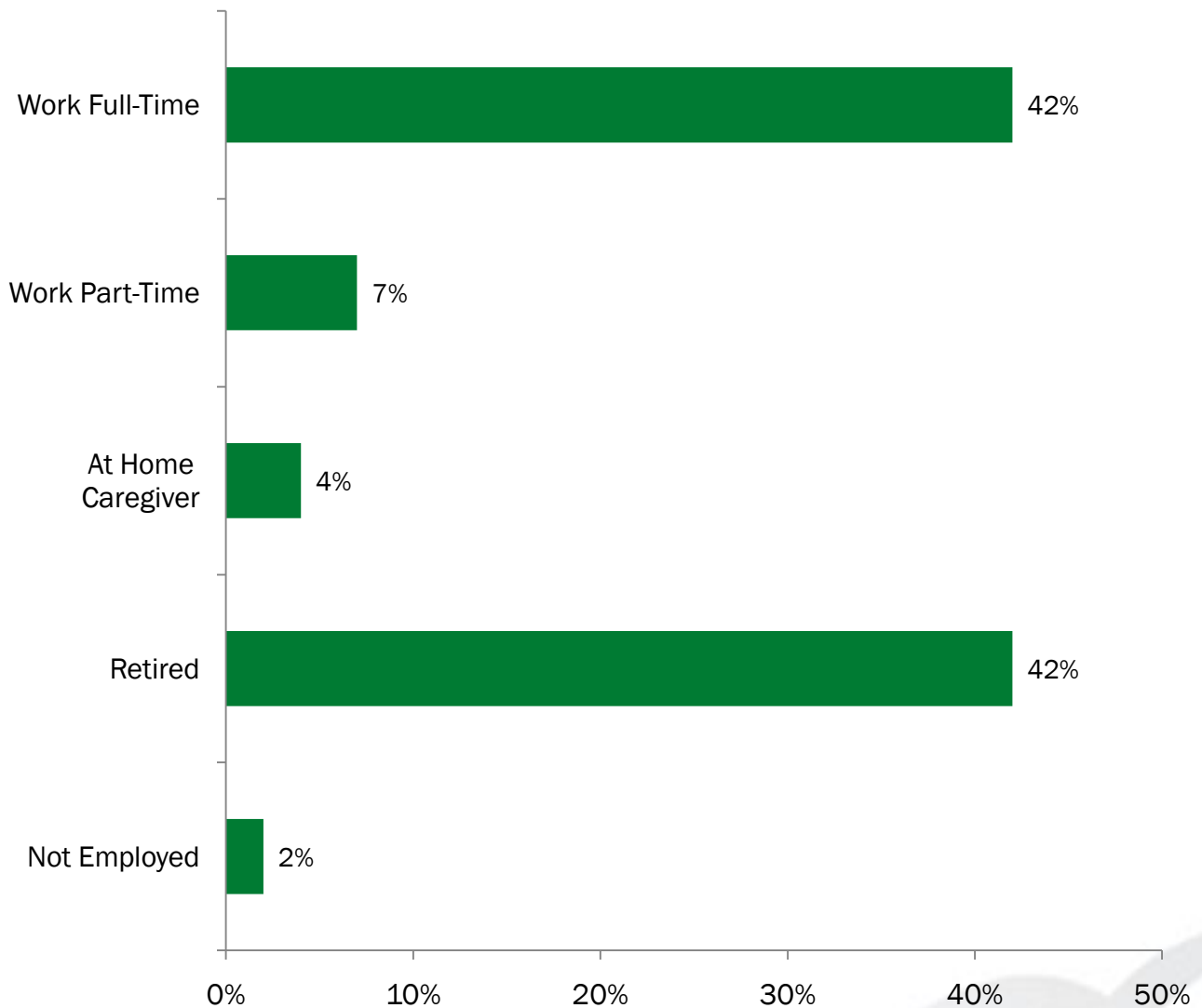
Number in Household



How many people are living in your home?

- Half live in households with two people.
- One-third live in households with three or more individuals.
- Almost one-fifth of the respondents live alone.

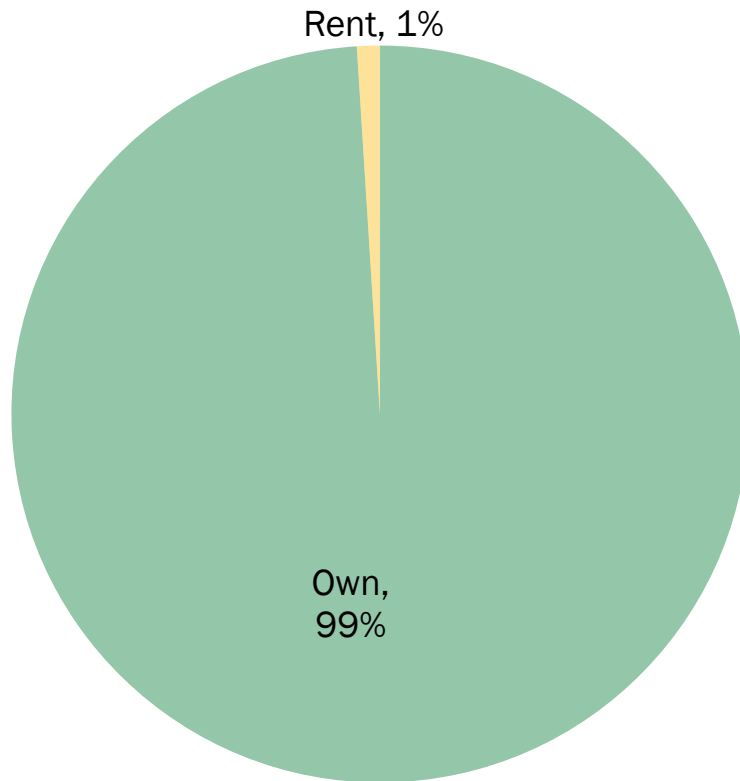
Employment Status



What is your current employment status?

- Almost half indicate they currently work full- or part-time while 42% are retired.

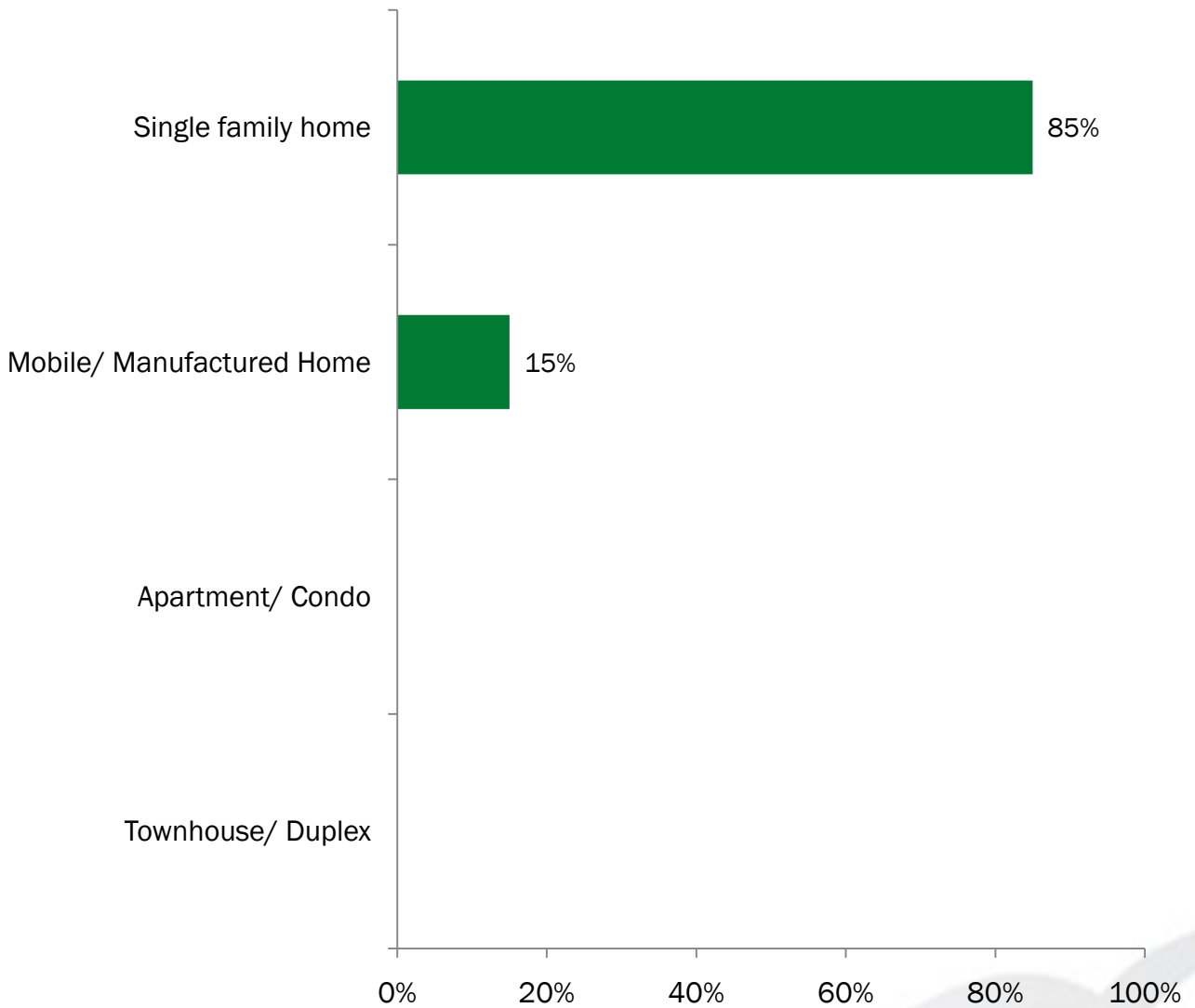
Own/Rent Home



Do you own or rent your home that is served by the co-op?

- Almost none of the respondents currently rent their home.

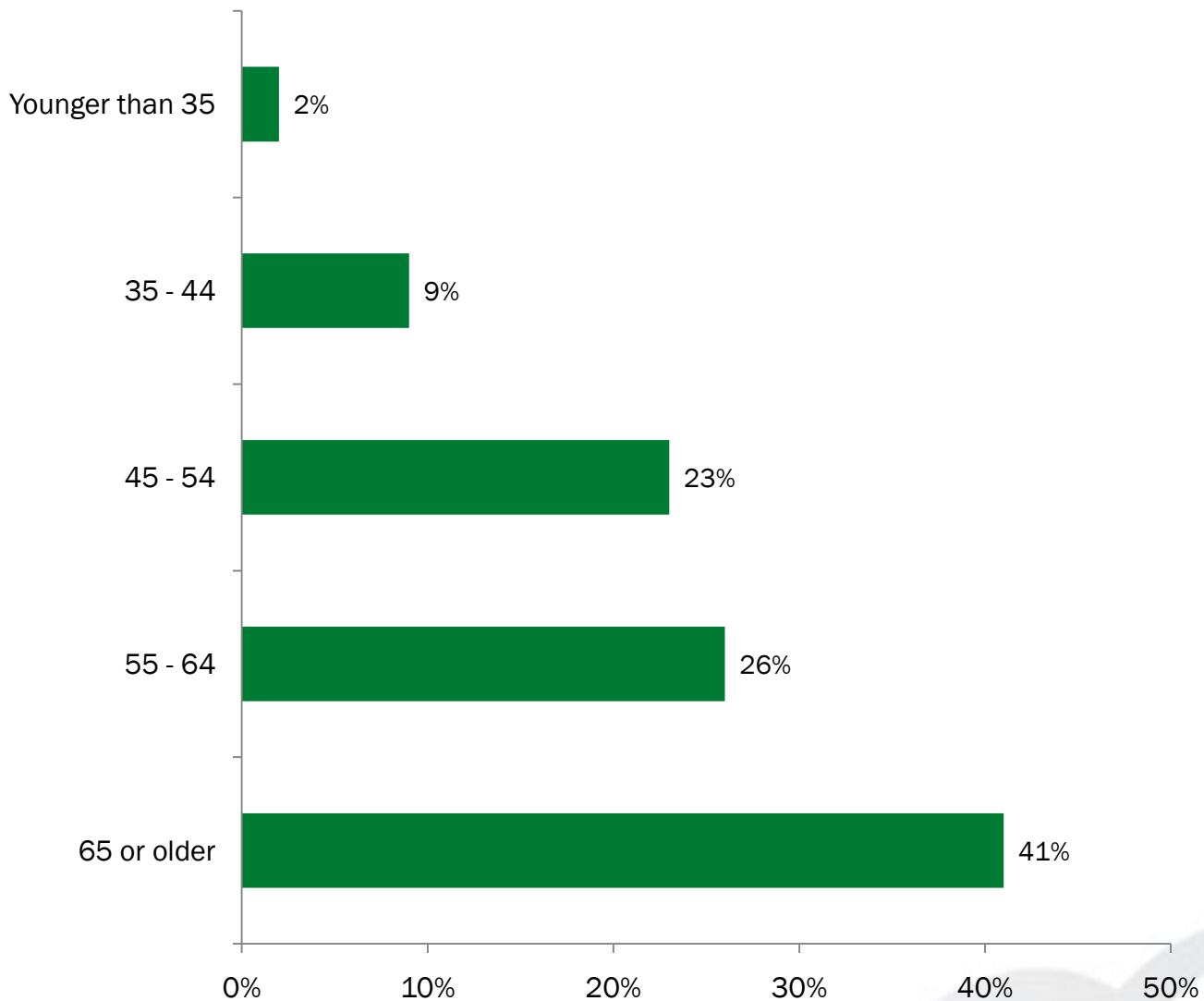
Dwelling Type



What type of dwelling is your home?

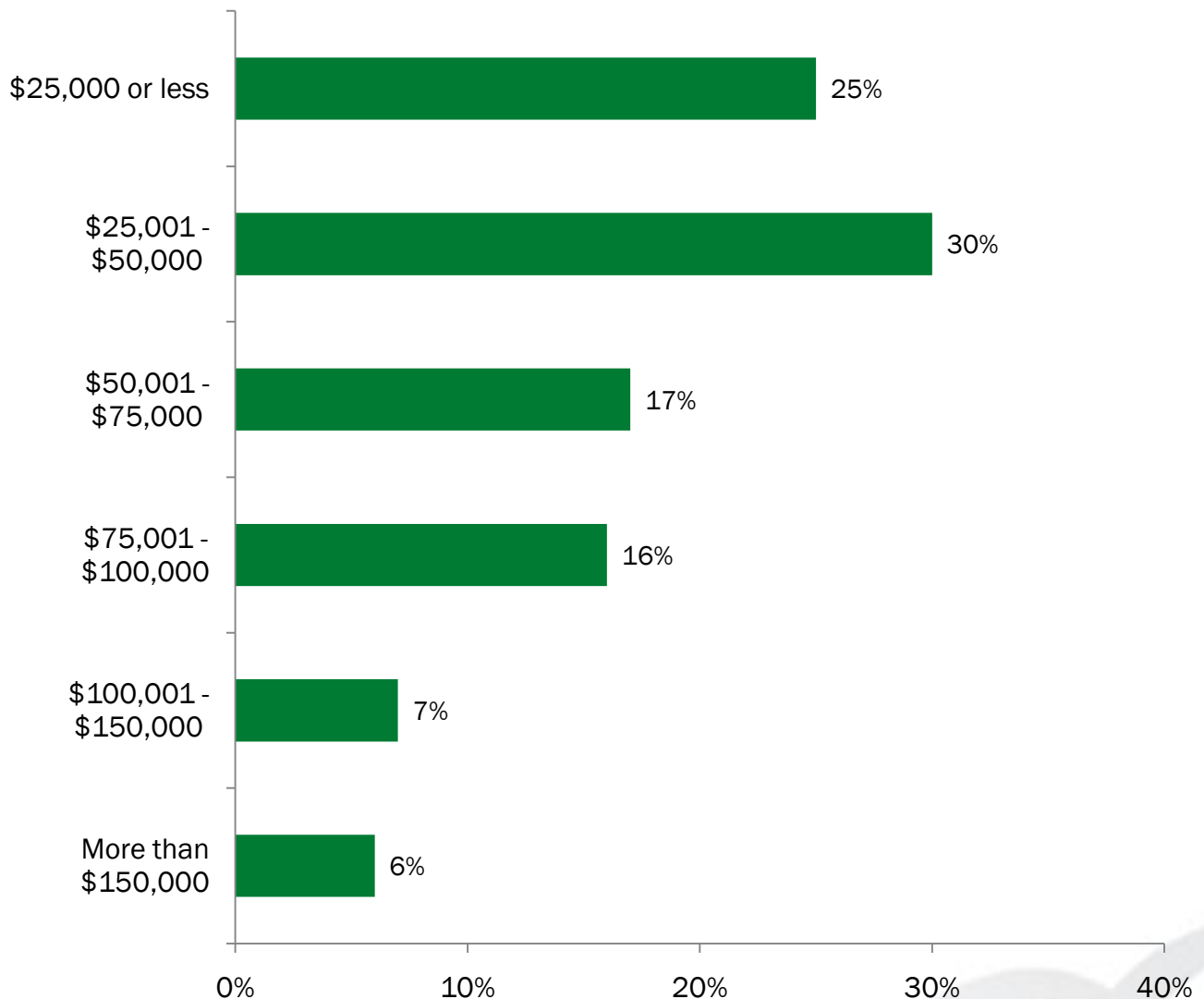
- Fifteen percent of those interviewed live in a mobile or manufactured home.

Age of Respondent



Which of the following age groups do you fall into?

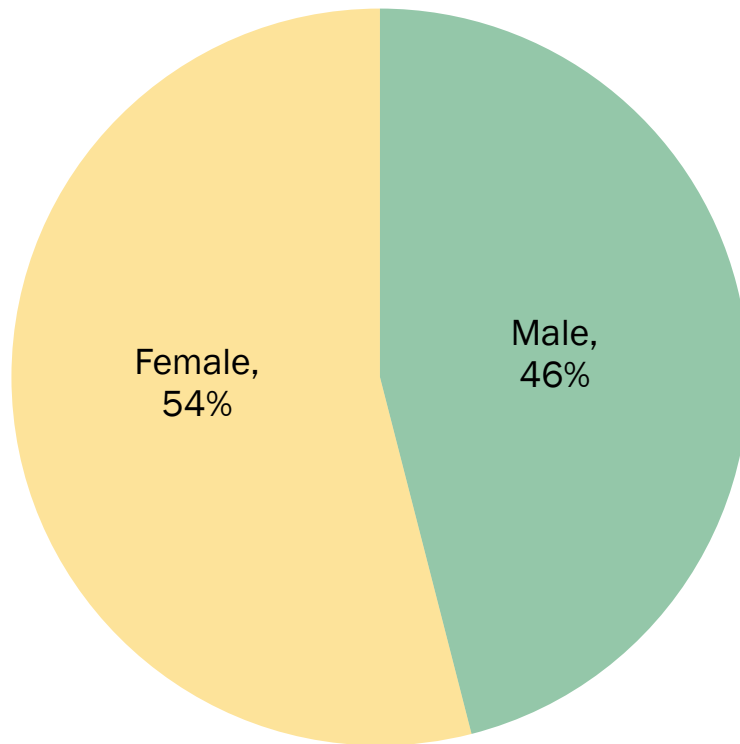
Annual Household Income



What was your approximate total household income before taxes?

- There is also a good representation of household incomes – one-quarter have incomes under \$25,000 while 29% have annual incomes over \$75,000.
- Twenty-seven percent chose not to respond to this question. Income questions typically have relatively high refusal rates.

Gender



Gender

- The study includes a good representation of both males and females – much closer to a 50-50 split than is typically seen in cooperative residential studies, which like the vast majority of surveys tend to skew more female.