



# TVA

## Building Strong Homeowner Relationships with Renewables Program

October 2018

# Overview

Quantitative incentive-sensitivity research

- 200 Valley homeowners

Insights development & concept lab

- 5 groups over 3 days
- 18 homeowners, 10 installers
- Iterative groups to revise / improve the concepts based on consumer input



Used to identify key elements of successful Renewables Programs and build concepts for research

Identified the most appealing ideas to residential customers & installers

- 1000 Valley homeowners
- 20 Solar installers



# Pricing Study

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# Pricing Study

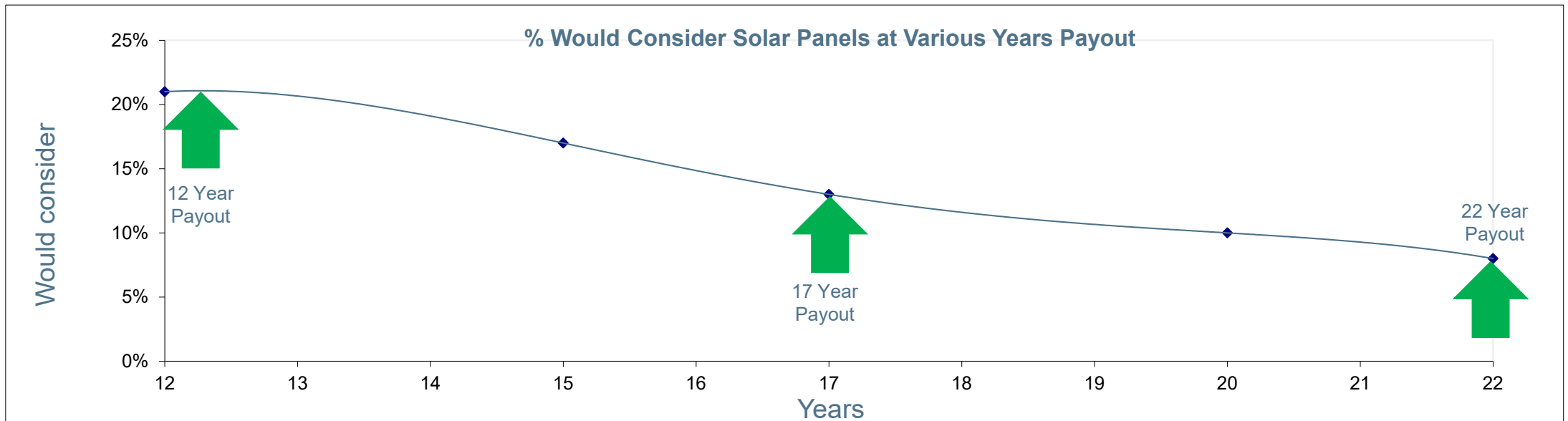
- **Incentive research:** We executed quantitative incentive-sensitivity research among Valley residents to understand:
  - Who intends to use and why, and what the price (incentive) sensitivity curve is
- **Methodology:** Respondents were given a brief description then asked about purchase interest at different incentive (payoff) levels to determine what effect, if any, the incentives have on purchase
  - *This survey is about solar panels that can be put on the roof of your home to generate electricity. To generate most of the power at a home with average electric bill of \$125, the solar panels cost about \$16,000 to install. The monthly power savings in that home would pay off the installation cost in 22 years.*
  - *If that home participates in an incentive program, its monthly power savings is greater and the installation cost is paid off in fewer years.*
  - How likely would you be to consider buying solar panels for your home that would pay off in **xx** years?
  - Asked for **12, 15, 17 (current), 20, 22 (no participation in program)** years, based on TVA's solar calculator
- **Respondent Specifications:** 200 Males & Females aged 18+ with HH incomes  $\geq$ \$50k who live in the TN Valley
  - Own single family detached house without solar panels; make or share in making energy decisions

# Solar Pricing Test (Demand Elasticity Curve)

## Incentive level does affect residential solar demand

- Demand would drop by about 1/3 at 22 year payout
- About half (54%) of HH \$50M+ would not consider solar panels even at 12 year payout

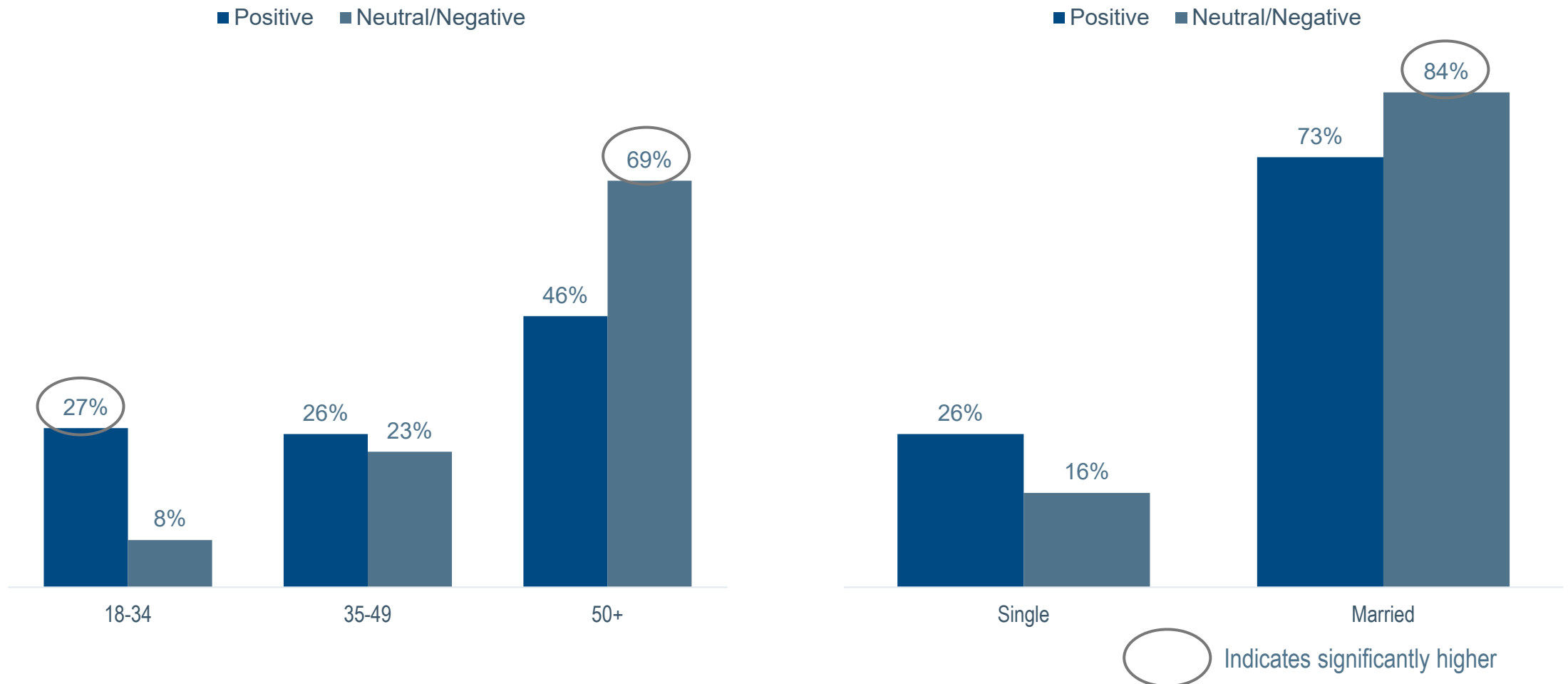
Residential Solar Price Sensitivity Among \$50M+HHs		
Payout Years	Demand	Notes
12	21%	
15	17%	
17	13%	From TVA Solar Calculator, WITH GPP participation
20	10%	
22	8%	From TVA Solar Calculator, NO GPP participation



# Who Intends to Use

## Positive Solar Panel Intenders tend to be younger; less likely to be married (likely attributable to age)

- Positive Intenders tend to be younger - 27% under 34 years of age vs. 8% neutral/ negative intenders
  - Neutral/ Negative Intenders tend to be older - 69% aged 50+ vs. 46% positive intenders
- Positive Intenders are less likely to be married - 27% under 34 years of age vs. 8% neutral/ negative intenders

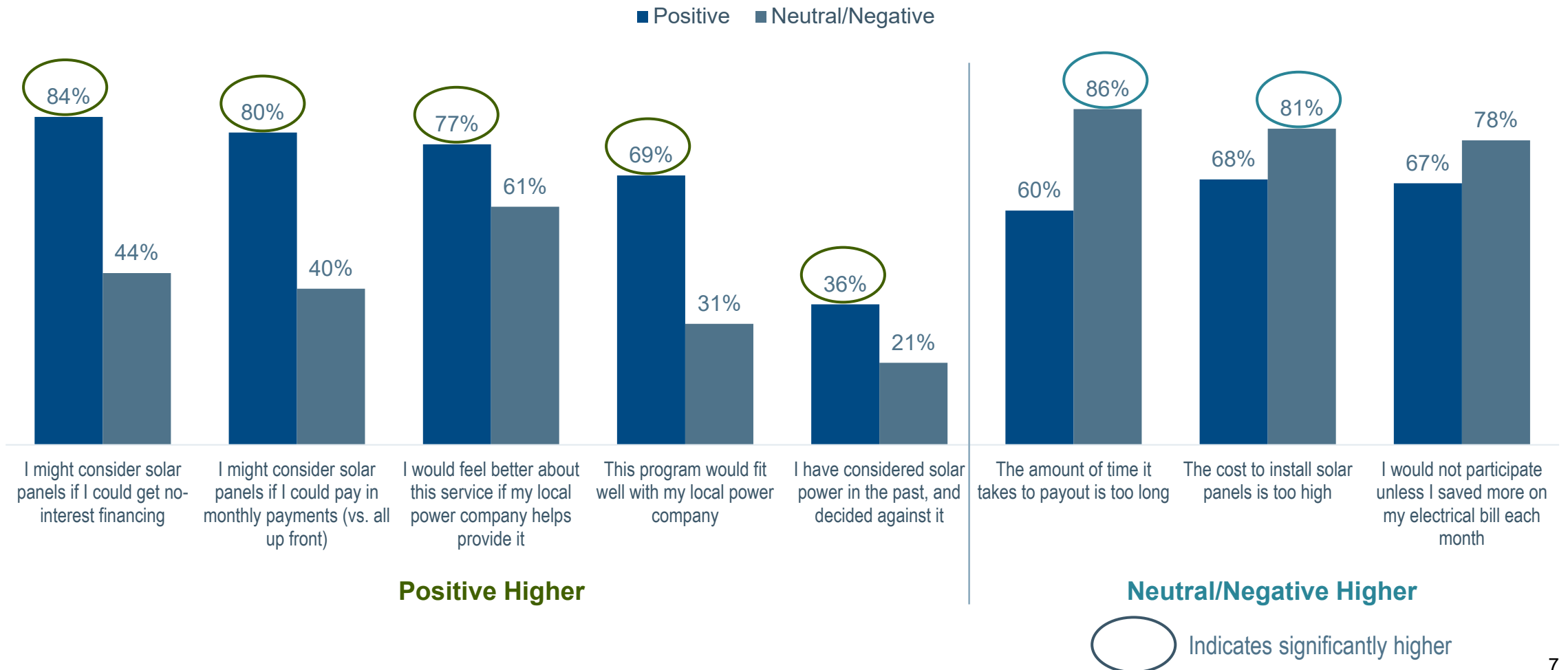


# Who Intends to Use

## Payment Options are important to positive solar purchase intenders

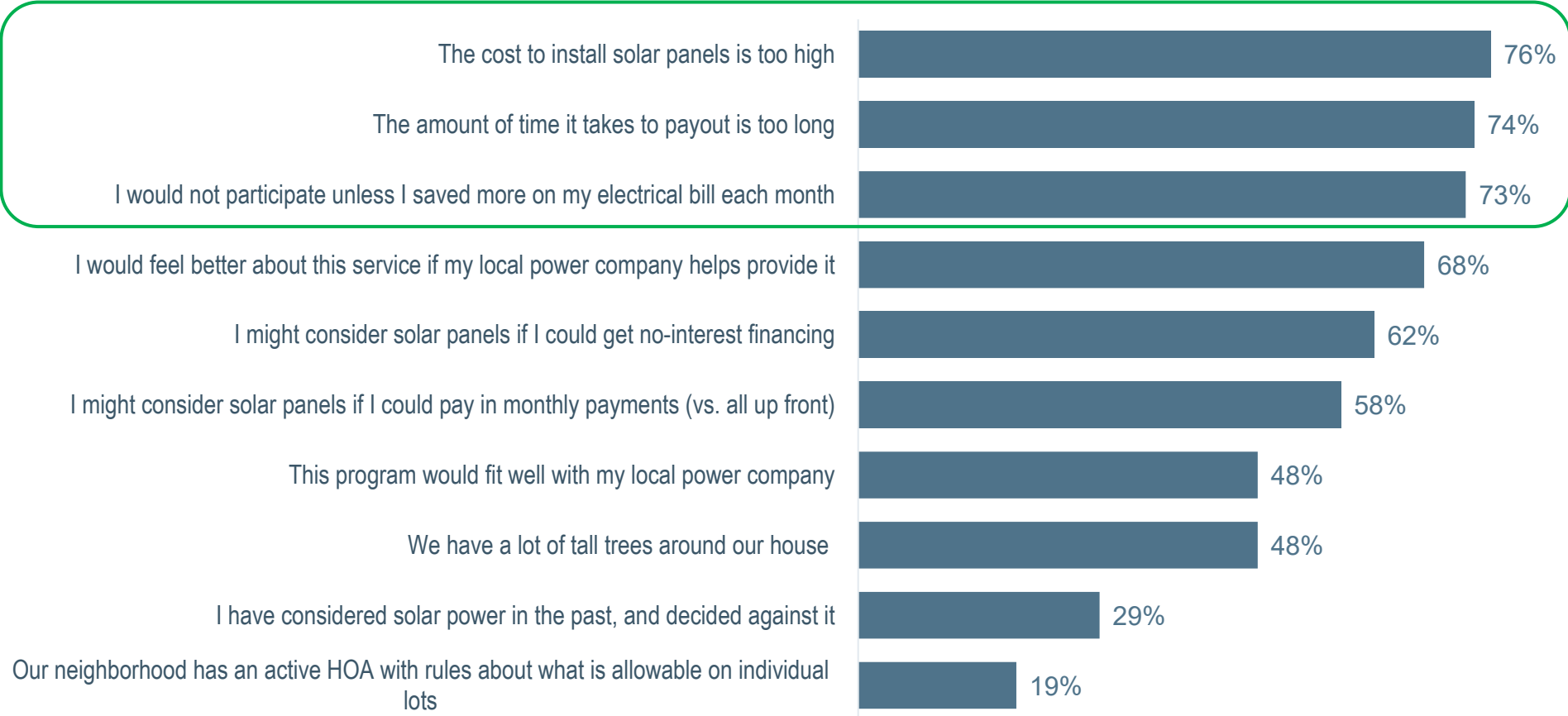
- Highest among positive – would increase interest (over 80% agreement) - no-interest financing, monthly payments

But would make less of a difference to Neutral/ Negative Intenders who believe the payout time to be too long and costs to install too high



# Cost, time and lack of savings are Biggest Obstacles

Cost, time and lack of savings are the biggest obstacles to consumers installing solar panels.



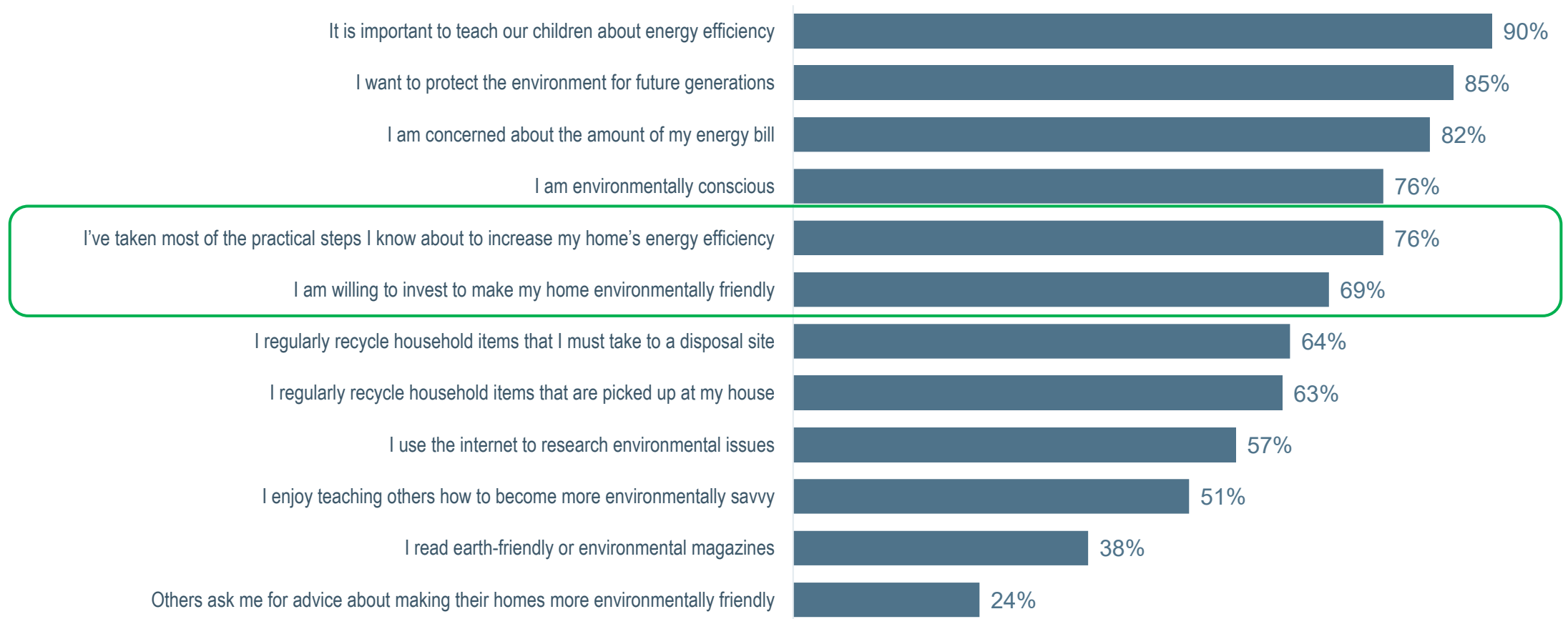
Q18. Please read each of the statements below that may be used to describe this program and indicate how much do you agree or disagree with each.



# 70% willing to invest in environmentally friendly homes

## But ¾ feel they have taken practical steps they know

- 70% are willing to invest to make their home more environmentally-friendly
- But three-quarters feel they've already taken useful steps to increase home's energy efficiency.

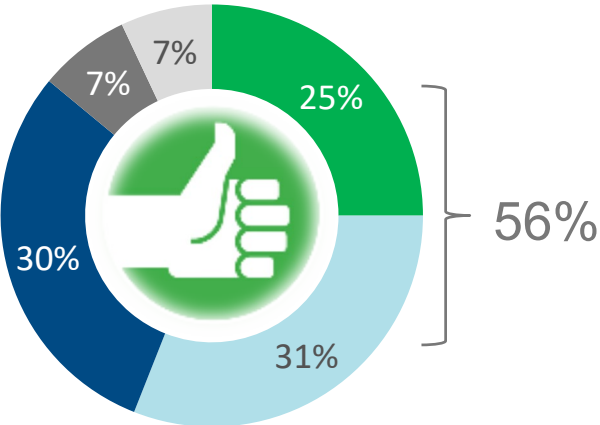


Q19. Please read each of the statements below about you and your home as it relates to the environment and indicate how much do you agree or disagree with each one.

# >Half would recommend solar panels; low Familiarity with GPP

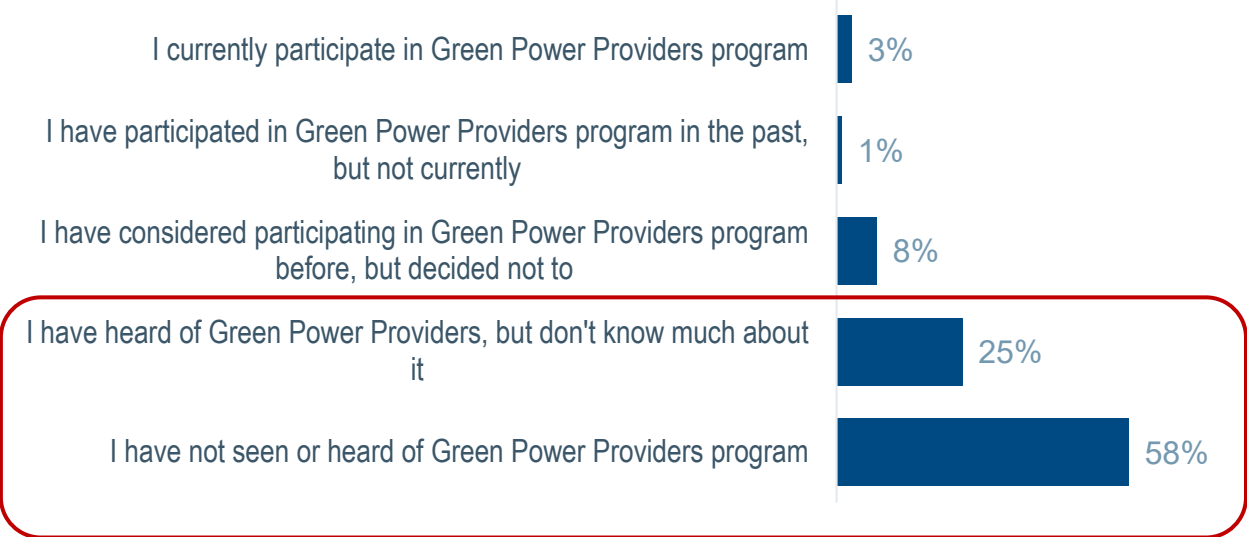
- More than half (56%) are likely to recommend using solar panels.
- Education will play a big part in solar panel usage and advocacy as more than 80% have either not heard of the current program or don't know much about the it.

### Likelihood to Recommend Solar Panels



■ Definitely would ■ Probably would ■ Might or might not ■ Probably would not ■ Definitely would not

### Experience with Green Power Providers



Q16. How likely would you be to recommend the use of solar panels to others?

Q17. Depending on where you live, you may have access to a solar panel program called Green Power Providers. Please select which of the following statements best describe your experience with Green Power Providers program. Select only one



# Secondary Research

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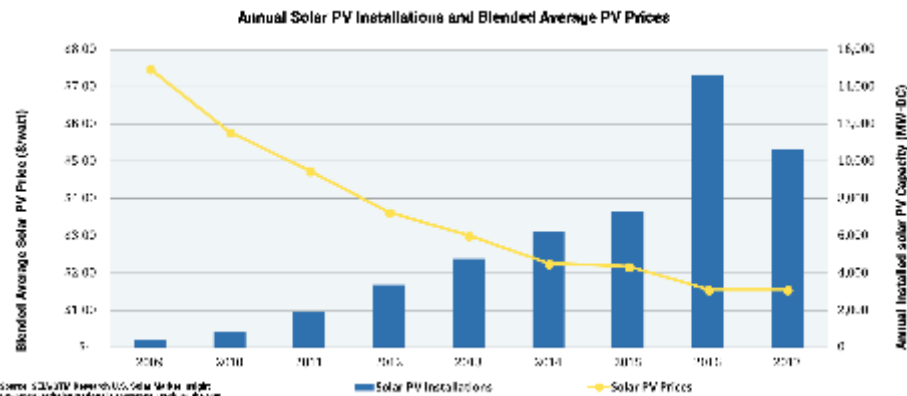


# Benchmarking from External Programs

# Toplines – Solar Stats / Consumer Insights

## National Solar Stats

- In the last decade, solar has experienced an average annual growth rate of 59%
- Installations surged in 2016 ahead of potential drop down of the Investment Tax Credit
- While prices have dropped 52% over last 5 years, price declines slowed in 2017

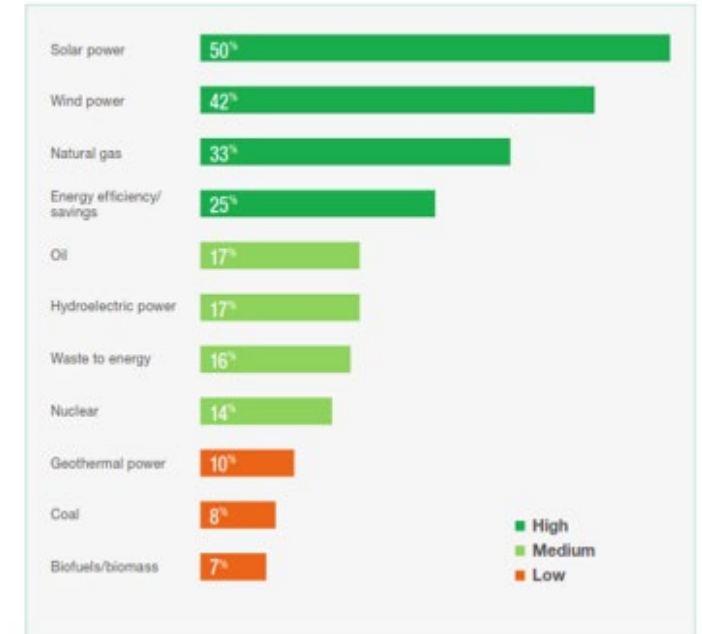


- There are now more than 1.7 million solar installations in the U.S.
- After reaching 1 million in 2016, 2 million should be hit in late 2018 and 4 million by 2023

## National Consumer Perceptions

- 1/2 of all homeowners say solar power is most important energy source for America's future – top across all demographics
- For consumers, it continues to be about economics – “Saving money” (82%) is top motivator to purchase clean-energy products; “Reducing my environmental impact” comes in a distant second place at 34%

Which energy sources do you believe are most important to America's energy future? (Pick up to three)



# Toplines – Benchmarking Benefits (\$)



Benefits almost always start with the \$

Reduce bill – increase home value

## BENEFITS OF CLEAN ENERGY



Reduce your monthly energy bill



Reduce your carbon footprint



Improve the resale value of your home



Help California reduce fossil fuel usage



Generate your own power and heat



Make an investment lasting up to 25 years



## Thinking about going solar?

Installing solar at home benefits both you and the environment by reducing the amount of electricity purchased from the utility and your carbon footprint.



### The Basics & Benefits of Solar

Installing solar at home benefits both you and the environment by reducing the amount of electricity purchased from the utility and your carbon footprint. A qualified contractor can guide you through the process.

[Watch Video >](#)

[Learn More About Solar Technology >](#)



## California Solar Power Can Save You Money

*Many Californians don't realize the amount of money spent on their home energy use each year.* In the next 10 years, the average California homeowner may spend over \$11,000 on electricity<sup>1</sup>. Not to mention that California electricity rates increased from 10.6 cents per kWh to 15.15 cents per kWh in 2015. That's a 43% increase in average electricity rates over just 17 years. **Smart homeowners are increasingly looking to renewable energy and investing in a home solar system today to help offset the rise in electricity rates.**

### Benefits of home solar power:

1. Solar systems can **lower your electric company bills** by up to an estimated 50%
2. Current U.S. government **tax credits could save you up to 30%** off the purchase of a home solar system,
3. Purchasing and installing a solar panel system **may increase the value of your home** by up to \$15,000 for an average-sized 3.6-kW PV system
4. Many solar providers are offering **great financing programs** so you can get solar for as little to \$0 down if you qualify
5. You can **protect yourself from rising costs of electricity**



# Toplines – Benchmarking Features



## Videos and Examples illustrating the difference between net zero and off-grid living



<https://youtu.be/Z17tEjXICtM>

### Estimated upfront system costs

- **Net Zero:** \$10,000 to \$40,000
- **Off Grid:** \$100,000 to \$300,000

### Electric reliability

- **Net Zero:** By maintaining a grid service, customers have a backup during times when their renewable system is producing less.
- **Off Grid:** even the most significantly larger systems and on-site system fails, there is no backup connection to the electric grid.

### Equipment and power supply needs

- **Net Zero:** PV panels and power inverter (uses a grid connection)
- **Off Grid:** sufficient power supply to meet all needs, including

### Maintenance and upkeep

- **Net Zero:** PV panels need to be cleaned regularly (frequency according to the manufacturer's recommendations).
- **Off Grid:** PV panels need to be cleaned regularly (frequency according to the manufacturer's recommendations). Some types of ball replacement after 10 years depending on use and according



## Solar Calculators are Points of Entry

**Solar Calculator**

Take the first step towards understanding your solar savings potential. With solar you can produce some of your own electricity, reduce your electric bill and shrink your carbon footprint.

[Start My Estimate](#)

### How It Works

- Review Personal Estimate**  
Find out your solar savings potential based on your rooftop characteristics, your electricity use, electricity rates and available tax credits and rebates.
- Compare Options**  
View options side-by-side to understand how different scenarios impact your wallet in the near-term and long-term.
- Make an Informed Decision**  
If solar seems like the right choice for you, talk to your contractor about the results of this tool.



## One-Stop Shop - Linking Solar Contractors & Incentives:

We work by matching you with top rated solar installers that services your local area. A specialist from each solar installer can then explain all of the cost saving initiatives that may be available to you – from government and California specific solar rebates & incentives to the different solar panel financing and leasing programs, all of which can help offset some of the initial solar system installation costs.

## Useful Tools & Services

- [FIND SOLAR INSTALLERS](#)
- [TALK TO SOLAR EXPERTS](#)
- [QUICK SOLAR CALCULATOR](#)
- [FREE SOLAR QUOTES](#)

# Toplines – Benchmarking Features



Commitment to growing solar energy



Enough solar to power  
**300,000**  
homes



Nearly  
**8.5 Million**  
solar panels



**2,300**  
construction jobs in Virginia



**\$3.6 Billion**  
invested in solar

expand  
energy

## Tennessee Solar Projects



Dominion Energy owns a majority interest in the following projects located in Tennessee:  
Mulberry Farm, Selmer Farm

- All power and environmental attributes are purchased by the Tennessee Valley Authority.
- Interconnection to the electric grid is through facilities owned and operated by Pickwick Electric Cooperative of Selmer, TN.



**Georgia Power aims to increase its solar energy generation from 970 megawatts of solar capacity by 1,600 megawatts by 2021.**

- Georgia Power is aiming to increase its renewable energy portfolio in the state by adding 100 megawatts of solar power.
- The utility firm is seeking proposals from solar facilities that are interested in selling solar power to the company, The Atlanta Journal-Constitution reported. Georgia Power is seeking contracts with them to provide solar power to customers at a fixed price for a period of five to 35 years.



# Toplines – Benchmarking Features



## Educational Videos on every Solar topic



## The Guide to Purchasing Green



**Power** provides current and potential buyers of green power with information about green power purchasing.



## Help Making Decisions

Choose the ideal renewable energy technology for your home

### SOLAR PANELS



#### BEST FOR:

Homes with plenty of rooftop space exposed to the sun with minimal shading for at least six hours a day, ideally from 9 a.m. to 3 p.m.

#### WHAT TO CONSIDER:

Solar panels can last more than 25 years. Make sure your roof is no more than seven years old to avoid reinstalling panels a second time.

### SOLAR WATER HEATING



Homes consuming large amounts of hot water, with plenty of roof space exposed to the sun.

You may need space for a solar storage tank near your existing water heater.

### BATTERIES / ENERGY STORAGE



Combining with renewable systems to supplement intermittent energy when needed.

Battery systems require space the size of a large appliance.



# Toplines – Benchmarking Payments



- You use the renewable energy to offset your usage
- Whatever is not used is purchased by Duke Energy
- The generation credit (only for what is not used) is applied at the end of every month



## **Southern Company (Alabama Power)**

- Does not pay any incentives
- Emphasis on 30% federal tax credit as a means to help pay for the initial investment



- Charges = Capacity charge – Energy credit + Fuel offset
- Residential Net Metering: up to 25 kW or highest P12m usage
  - Excess monthly energy credited at end of next billing cycle or (at customer) towards other net meters customer has
  - Any excess remaining energy in net meter account queue per customer can be purchased by EA at avoidable cost rate when is older generation or if customer is relocating

# 50 States of Solar

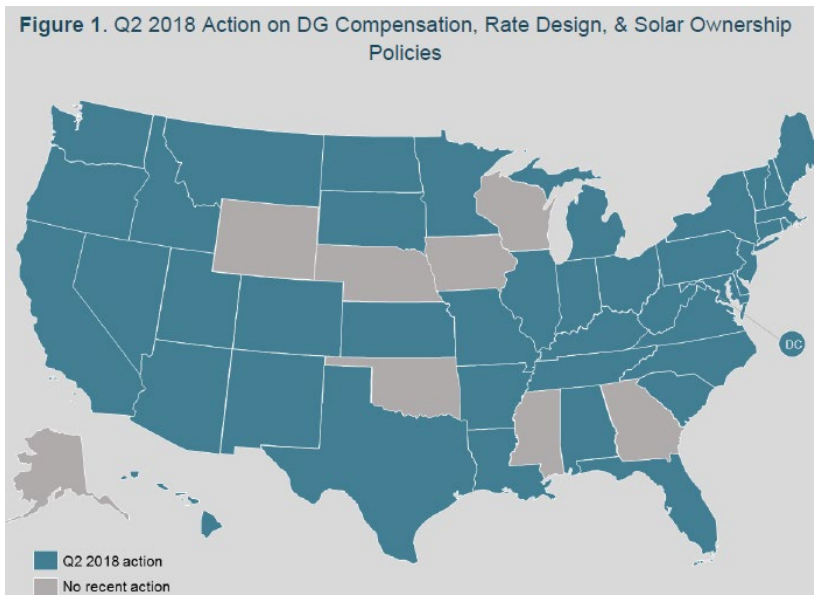
# Top Five Solar Policy Developments of Q2 2018

## Connecticut Becomes the Latest State to Move Away From Net Metering

Connecticut's Governor signed S.B. 9 into law in May 2018, which closes net metering to new customers at the end of the state's residential solar investment program. Customers beginning to net meter before this time will be grandfathered until the end of 2039, while new customers will be able to select between two options – net billing and buy-all, sell-all – the details of which are yet to be determined.

## New Jersey Legislature Adopts a Statewide Community Solar Policy

The Governor of New Jersey signed A.B. 3723 into law in May 2018, making the state the 19<sup>th</sup> to adopt a statewide community solar policy. The legislation creates a community solar pilot program, which is to become a permanent program within three years of final rules being adopted. The Board of Public Utilities is to establish many of the program's criteria, including participant credit rates, an annual aggregate capacity limit, and ways to provide access to low and moderate income customers.





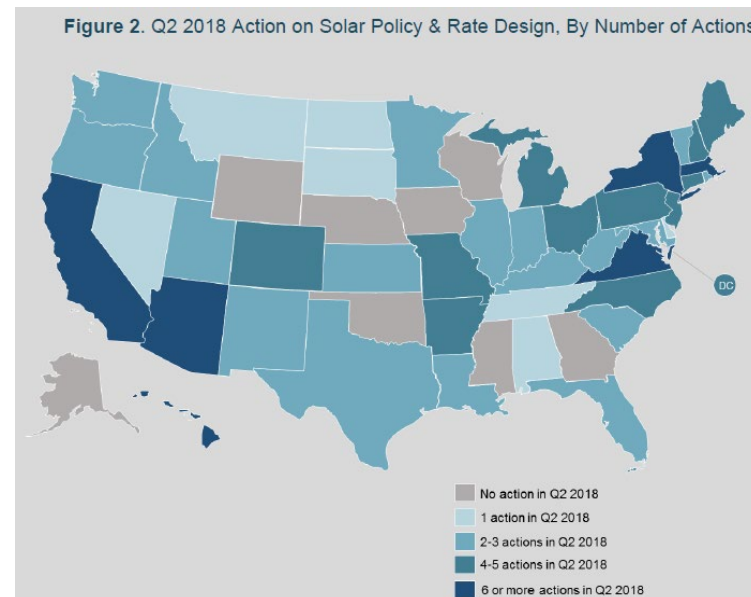
# Top Five Solar Policy Developments of Q2 2018

## Florida Public Service Commission Opens the Door to Residential Solar Leasing

Responding to a petition for a declaratory ruling by Sunrun, the Florida Public Service Commission issued a declaratory statement in May 2018, ruling that Sunrun's residential solar equipment lease does not constitute a sale of electricity and does not subject the company to regulation as a public utility. Following this order, Vivint Solar filed a similar petition for a declaratory ruling on its residential solar equipment lease.

## Regulators Approve Idaho Power Request to Separate DG Customers into Unique Class

In May 2018, the Idaho Public Utilities Commission approved Idaho Power's request to separate residential and small general service customers with on-site generation into unique customer classes. The Commission also approved the opening of a new proceeding to study issues related to on-site generation, including rate design, compensation, and the cost and benefits of net metering.



# Top Five Solar Policy Developments of Q2 2018

## **Colorado, Connecticut, and New York Regulators Approve Residential Fixed Charge Reductions**

Commissions in three states approved reductions in residential fixed charges during Q2 2018. In New York, Central Hudson Gas & Electric's fixed charge reduction was the result of a settlement agreement, while the Colorado Commission rejected Black Hills Energy's cost allocation method, citing public policy concerns related to low-income customers and energy conservation. Connecticut regulators also approved a reduction in Eversource's fixed charge, although the utility had not requested an increase.



# Qualitative Research

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# Homeowners

# Homeowners

- Tradewind Group & TVA gathered program inputs from Quantitative Incentive Research, TVA interviews, and secondary research benchmarking other programs to create initial concept to test with Homeowners in Concept Labs.
- Three different sets of homeowners who have income \$75,000+ and “definitely would” or “probably would” consider solar panels were invited to participate in Concept Labs.
- Homeowner’s Concept Labs generated 4 potential concepts; all of which moved forward into quantitative research, along with one control concept.
- Following Concept Labs, ‘Confidence’ concept was the chosen winner.



Value to the consumer is helping find **qualified, trained** installers



The **pain point isn't about the cost**



It's about **getting the job done right!**



And, **they believe you can do that!**

# Concepts Tested

## Concept C – Confidence

2 million US houses have solar panels on the roof, and I'm ready to take that step. But everyone knows people who have had problems with contractors not doing work right, and I worry that I might end up in the same situation with my solar installer.

Now my local power company and TVA's Solar Energy program helps me be confident that my solar installer will do the best possible job for me.

That's because the program helps me get the information I need from a resource I trust so I can make a good decision. I can see qualifications for each contractor on the web site so I can decide exactly which contractor fits me the best. In this program, I can get:

- A list of qualified contractors who are specially trained and approved. These contractors:
  - Have a history of high customer satisfaction. My local power company and TVA ask every customer about their satisfaction after every job.
  - Are licensed, insured and bonded, and have good Better Business Bureau ratings
  - Have completed special training on TVA quality guidelines
  - Have completed a large number of jobs successfully.
- Support services from my local power company and TVA including:
  - A professional energy advisor who can come to my home to make sure the job was done right
  - If they find the job does not meet quality guidelines, they will work with you until it's right

## Concept G – GPP Control

I want solar for my own residence and I want to get paid for the energy I generate so that my monthly bills are lower.

My local power company and TVA offer a program (Green Power Providers) that helps me install solar panels on my home with a quicker return on investment.

Here's how it works:

- TVA and your local power company purchase all the solar power you generate for a 20 year contract
- You continue purchasing all your power from the local power company, but some of the cost is offset by the power you sell to them. If you generate enough power, they could even pay you more than you pay them
- Because TVA purchases all of the energy and associated environmental attributes, I enable other Valley residents to support green energy by purchasing my solar panel generation

## Concept M – Understand Money

We've done everything we can to be more energy efficient at our house, and we're ready to move on to install solar panels.

Now my local power company and TVA's Solar Energy program helps me understand how my solar panels can benefit me with:

- An online calculator so we can see what our payments may look like
- Information about financing plans to help with initial installation costs
- A meter display inside my home which shows how much of my energy consumption is powered by the solar panels vs traditional energy supply
- Billing that clearly shows the monthly savings from the power generated by my solar panels

## Concept R – Responsibility

I'm committed to protecting the environment from pollution and preserving our planet's resources for years to come.

Now my local power company and TVA's Solar Energy program helps me do my part to make tomorrow's environment better.

That's because my local power company and TVA's Solar Energy program helps me understand how my installed solar panels are benefiting the environment with:

- A meter display inside my home which shows how much of my energy consumption is powered by the solar panels vs traditional energy supply
- Billing that clearly shows the monthly savings from the power generated by my solar panels
- A regular update on the amount of environmental impact that was avoided via solar power

## Concept S – Get Started with Solar

I'm interested in solar but I'm not sure if it's right for me.

My local power company and TVA's Solar Energy program helps me understand whether solar is right for me.

In this program, a professional energy advisor provides:

- An on-site evaluation of my home to determine if the lot and roof orientation works for solar panels
- Education about the best type and size of power generation system for me based on the amount of sun at my house.
- A list of steps I would need to take to generate power at my home and information about how to get started
- An online solar calculator to show me the cost/benefit of a solar system

If solar is not right for me, the programs helps me understand other smart energy options by providing:

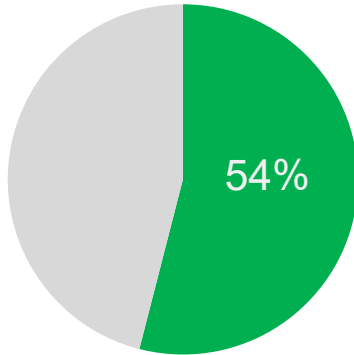
- A professional energy evaluation of my home to determine its unique energy opportunities
- A personalized assessment of my home's energy use and a tailored list of recommended energy upgrades to make my home the best it can be



# Homeowners

## Confidence Concept

### Participation in Program

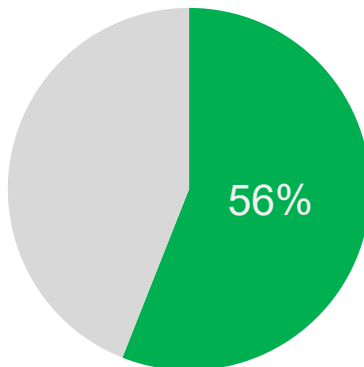


**54%** definitely / probably expect to **participate**

*[I like that I] can easily choose a qualified installer with guidance and follow up by TVA ensuring that job is done right.*

*I like that they have picked out good contractors who will get the job done and sounds like it would be done right and on time.*

### Recommend Program



**56%** definitely / probably expect to **recommend** the program to other people

*If I could find a trustworthy contract to do the work that is certified and approved by my power company, then that would take a lot of the work and worry out of the process.*

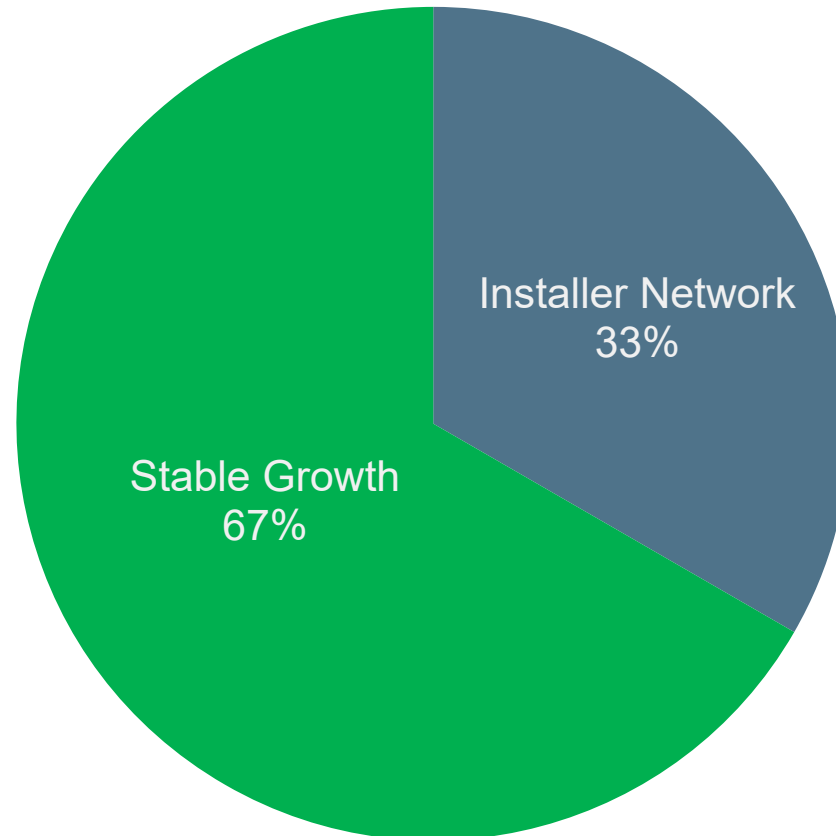


# Installers

# Installers

- Following Homeowner Research, Tradewind Group & TVA created initial concepts to test with Solar Installers in Concept Labs.
- Solar Installers' Concept Labs generated 6 potential concepts; 2 of which moved forward into quantitative research. One was "Installer Network", an installer-facing version of "Confidence".
- Though "Confidence" concept came in second with the installers, a number of features in this concept were identified that will meet the homeowner and the installer needs.

## Preferred Program



*"Having a streamlined platform would be tremendous."*

*"A long term TVA program commitment sounds great."*

*"It sounds great – the biggest issues with solar are the (1) financing, and (2) how long it takes from initial contact with utility company to installation."*

*"I hope this streamlines paperwork and timing and doesn't add to it."*

*"Better Business Bureau is an organization you just 'pay to get in'"*

*"I already advertise on search engines so this could be more competition for me. How will they divvy up leads?"*



# Installers

## Stable Solar Growth Concept

Navigating solar installation in the Tennessee Valley from year to year can be tricky. Lots of variables interact to make the market unpredictable.

Now, TVA and your local power company are working together to promote stable solar growth in the TN Valley. That's because TVA and LPCs are working together to provide coordinated services to installers and homeowners:

### Installer offerings:

- ONE program across the Valley, so no need to deal with differences among LPCs
- Long-term TVA program commitments that don't change over time
- TVA Solar Installer Network with installers (like yourself) who meet strict standards to get into the program

### Homeowner offerings:

- Information about financing plans that can help with initial installation costs
- Educational web site that clearly explains how solar power is produced and used, and how solar systems work. The site includes a quiz to help homeowners understand whether their lot and roof orientation will work for solar panels.

# Installers

## Installer Network Concept

I'm always looking for ways to communicate the quality of my work to my customers.

Now, your customers will understand how established and effective your company is, because TVA and your local power company have made you part of their Solar Installer Network.

Your local power company and TVA offer homeowners a list of qualified solar installers (like yourself) who meet strict standards to get into the program, and maintain those standards to stay in the program. They help homeowners understand that qualifying installers:

### Homeowner offerings:

- Have a history of high customer satisfaction
- Are licensed, insured and bonded, and have good Better Business Bureau ratings
- Have completed a large number of jobs in the Tennessee Valley over a number of years
- Have completed special training on standards that are developed jointly between Solar Installers and TVA

### Installer offerings:

- TVA will show your business on their own site
- TVA will send you leads from their site and from other search engines like Google



# Quantitative Testing

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# Homeowners

# Background/ Methodology

## Method and Design

A 15-20 minute online consumer research study evaluating the concept. Questions included:

- Participation Intent
- Recommendation Intent
- Likes & Dislikes
- Feature Importance
- Equity associations for LPCs and TVA

## Sample Specifications

The primary sample consisted of a general population sample of 200 US adults per concept who meet requirements listed below.

- Gender = Males & Females
- Age = 18+
- Own single family detached house
- Primary decision maker (or share responsibility) for home energy usage and energy improvements
- Do not work in home repair/improvement industry or for electric/power company
- Live in Tennessee or specific counties in Alabama, Georgia, Kentucky or Mississippi
- Household income = >\$50,000K
- Do not already have solar panels on their homes

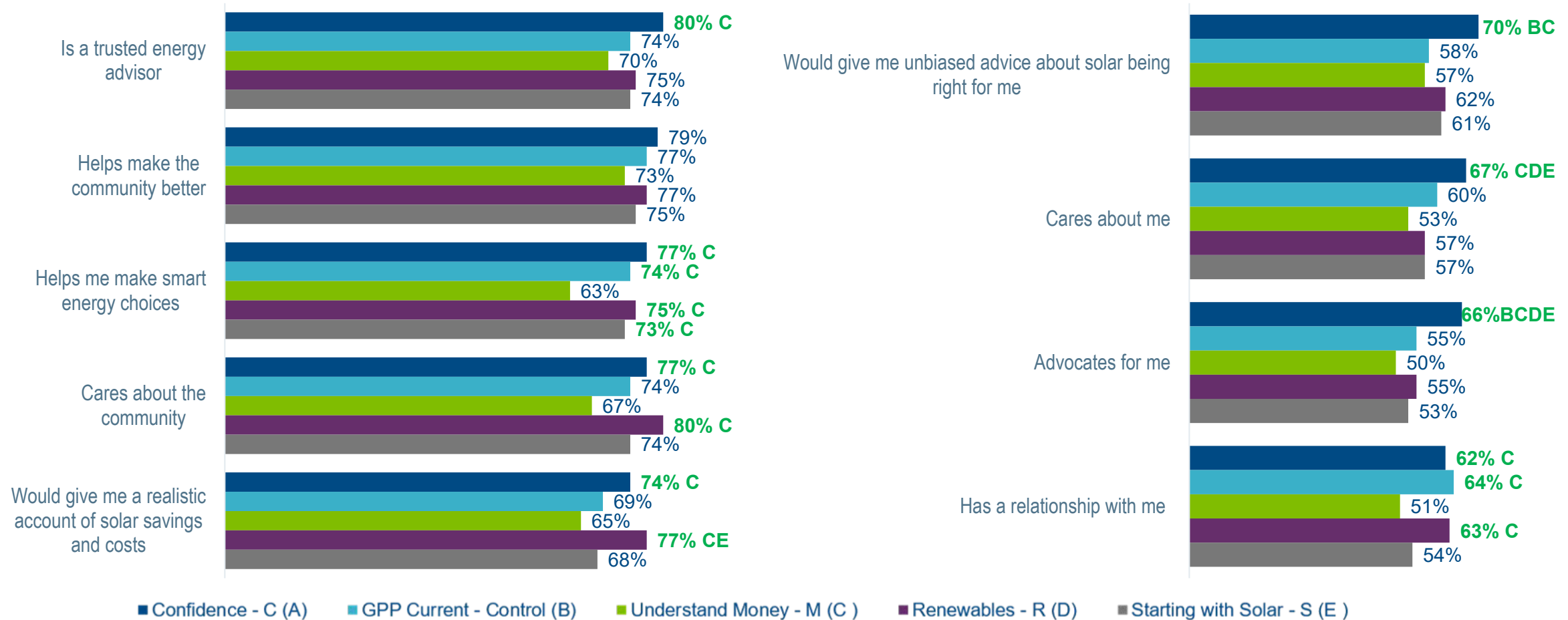
# Topline Results Summary

- Concept C (Confidence, similar to eScore concept) **elicits more positive feelings regarding the local power company**
  - Most feel TVA is a trusted energy advisor, supports renewable/solar energy, and makes the Tennessee Valley a better place.
- We are likely to have **fewer participants** with “Concept C - Confidence” concept versus “Control – Concept G”.
  - This likely traces to the possibility of making money with the control concept - While Confidence Concept feature importance focuses on qualified contractors, Control concept focuses on possibility of making money .
- There is little differentiation of overall features that are Extremely/ Very Important – **all are very high 81%-89% range**.
  - Qualified Solar Installers, TVA protection, and Savings generated top the list of ‘Extremely Important’ features, while tools and evaluations fall to the bottom of this list.
- Top Environmental Views surround **teaching children/ protecting for future generations and concern about energy bills**.
  - Lower Agreement to teaching/ telling others about environment, but much higher among Positive Participation Intenders.
- Consumers want to be **informed about Solar Programs through their LPC or TVA**
  - These are also top 2 choices among Positive Participation Intenders, but because more likely researching environment online, also more likely to want to hear about program on search engines when looking for contractors.
- **Target consumers** with the following characteristics (significantly higher among positive participation intenders):
  - First time home-owners a few years after they have settled into their homes (not brand new homes).
  - They tend to be younger or middle aged, with children in the home.
  - Consider reaching through the GPP. They are more likely aware/ have participated and generally more environmental.



# Concept C elicits more positive feelings regarding the local power company

LPC – T2B Agreement (Strongly/ Somewhat Agree) – Top 5



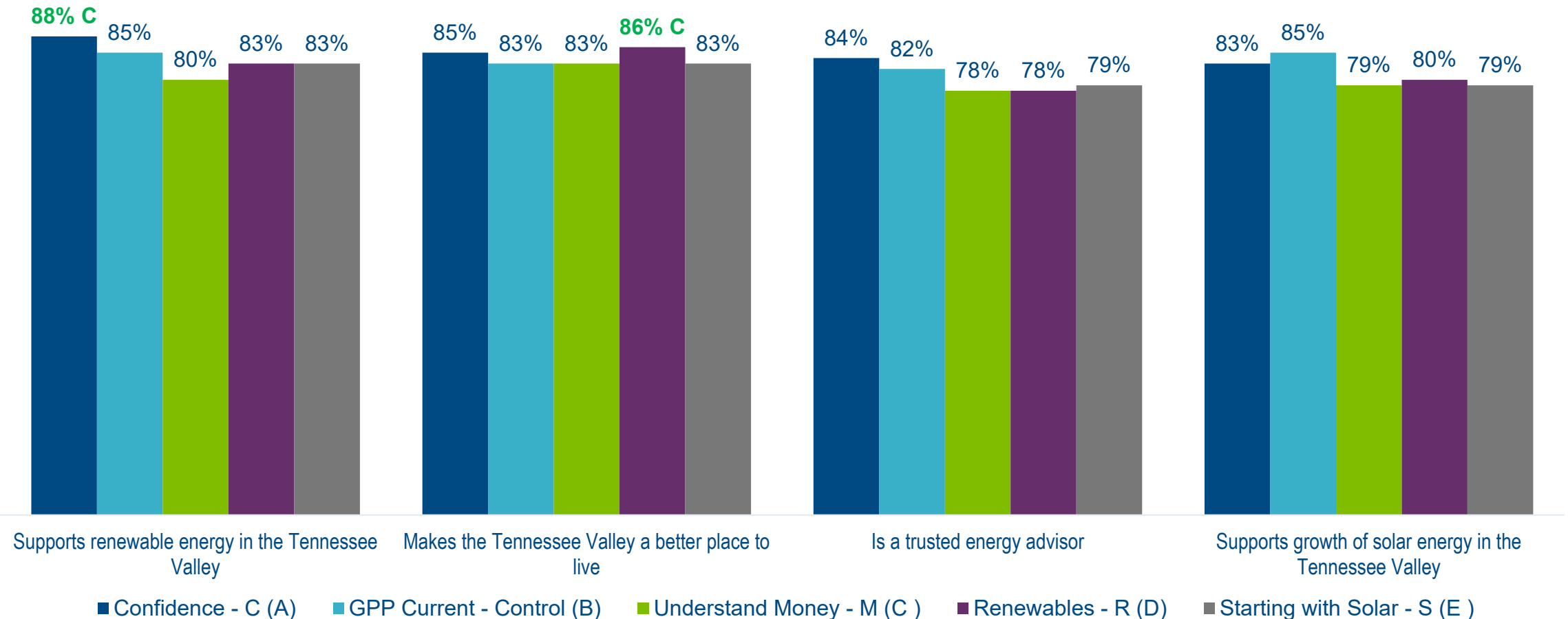
Q20. If your local power company made a program like this available, how much would you agree or disagree with the following? My local power company ....

A/B/C/D/E/ = significantly higher at 95% confidence level

# Most feel the TVA supports renewable/solar energy, makes the TV a better place and is a trusted energy advisor

The “Concept M - Understanding Money” is a little worse than others for reflecting well on TVA.

TVA – T2B Agreement (Strongly/ Somewhat Agree)



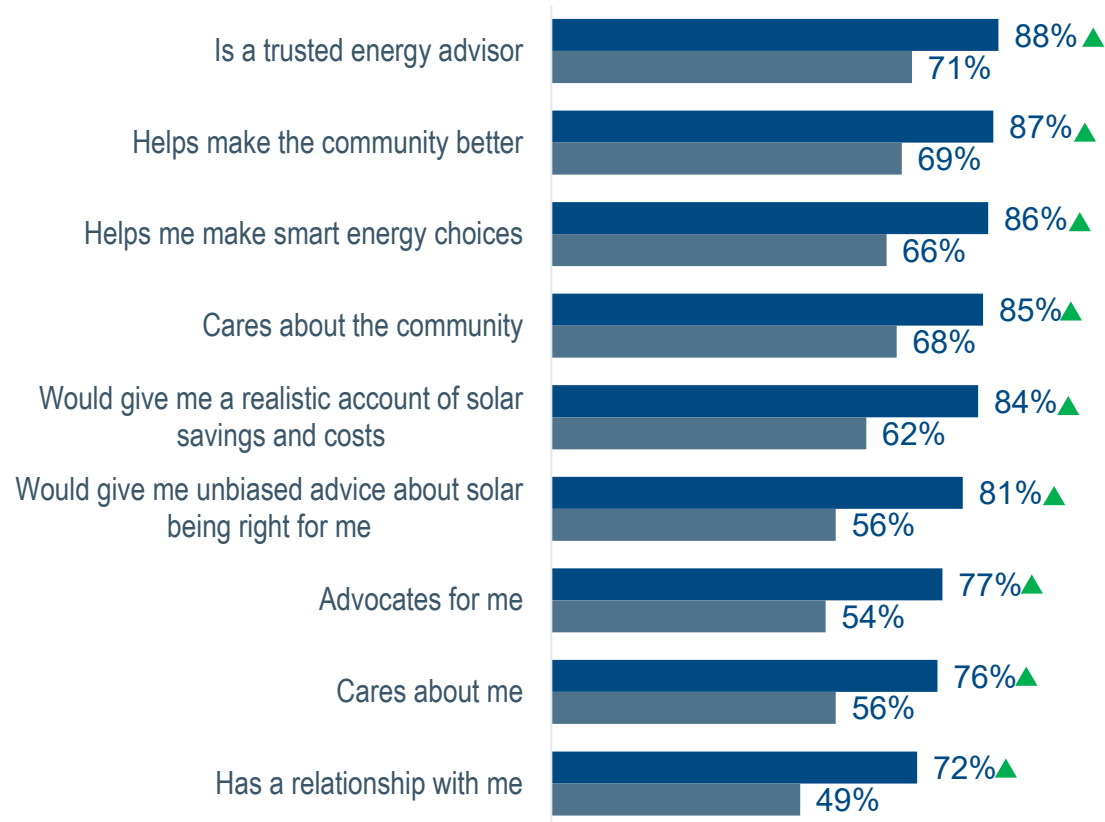
Q21. If the Tennessee Valley Authority (TVA) made a program like this available, how much would you agree or disagree with the following?  
The TVA....

A/B/C/D/E/ = significantly higher at 95% confidence level

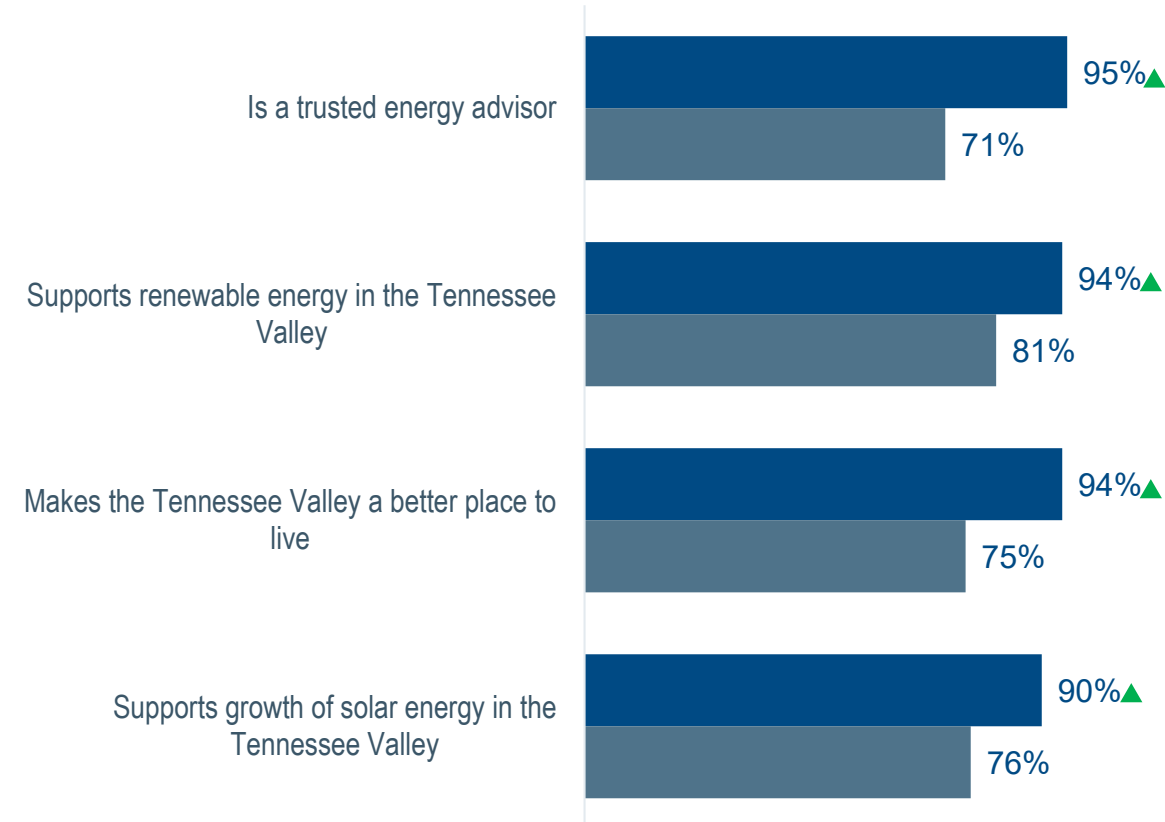
# Likely participants are even more favorable to LPCs & TVA

Positive Intenders are significantly more favorable towards ALL LPC and TVA attitudes - all statements significantly higher than non-intenders

## Top 2 Box LPC Attitudes



## Top 2 Box TVA Attitudes



■ Positive Participation Intent ■ Negative Participation Intent

Q20. If your local power company made a program like this available, how much would you agree or disagree with the following?

Q21. If the Tennessee Valley Authority (TVA) made a program like this available, how much would you agree or disagree with the following?

▲ Indicates significantly higher at 90% confidence level

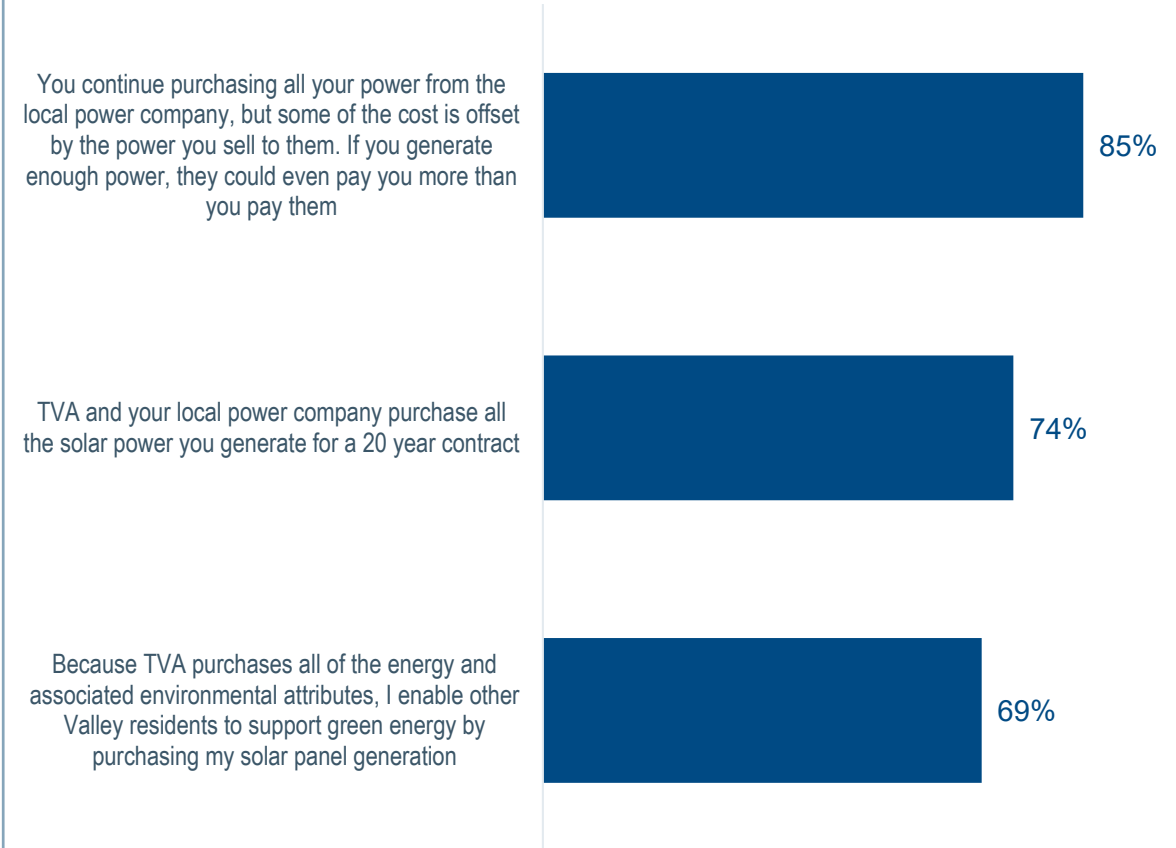


# While Confidence Concept feature importance focuses on qualified contractors, Control concept focuses on possibility of making money

**Concept C (Confidence) – Importance of Attributes**



**Concept G (GPP Current) – Importance of Attributes**

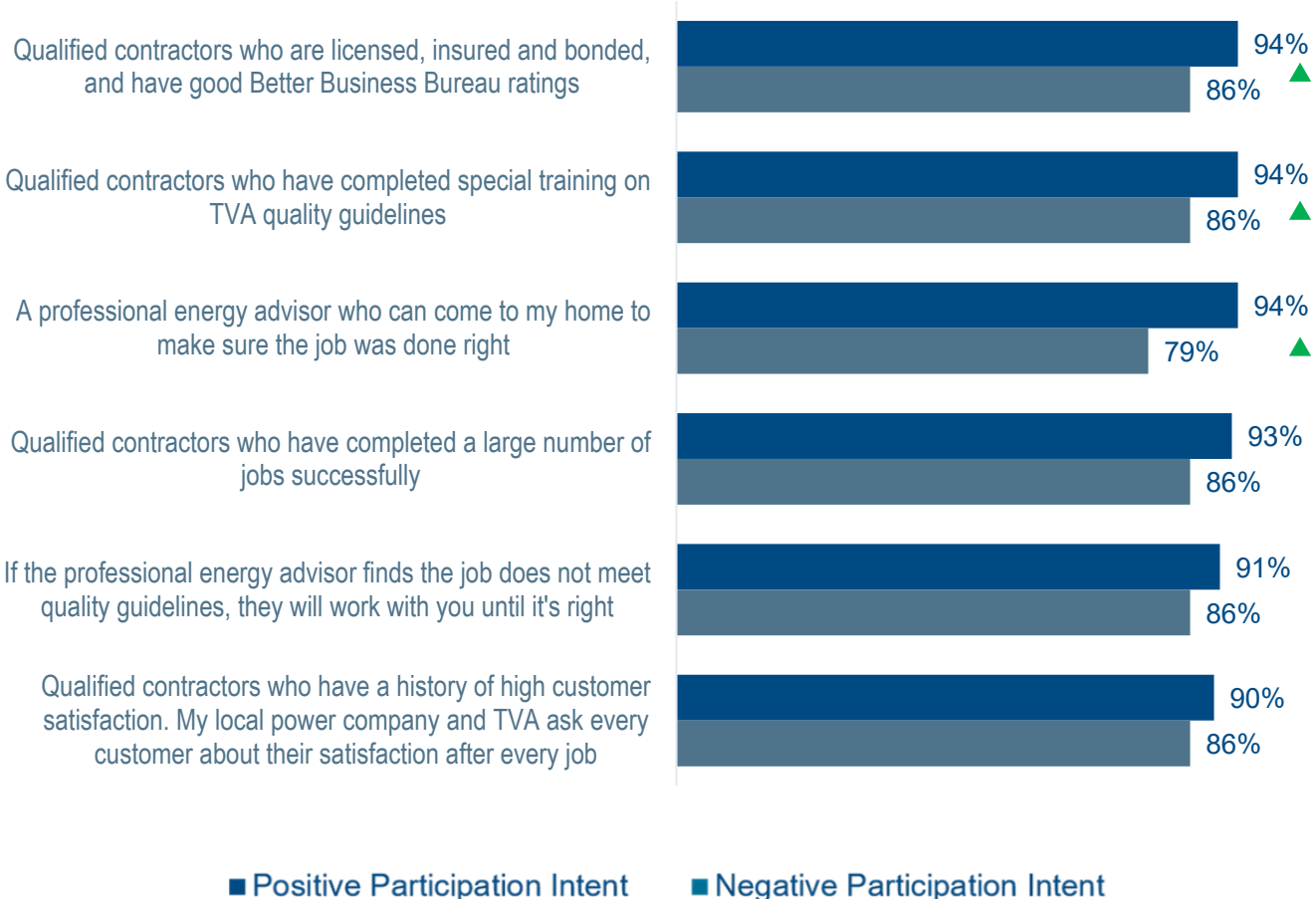


Q19A. The program would include all of the features listed in the description you read. We would like to know how important each feature is to you. Please read each one carefully, and indicate how important it is to you that the program includes this feature.

# Likely Participants Place Higher Importance on 'Confidence' Features

They feel more strongly about features – for features in the Confidence concept they evaluated, 3 features are significantly higher

## Top 2 Box Feature Importance



Q19B. The program would include all of the features listed in the description you read. We would like to know how important each feature is to you. Please read each one carefully, and indicate how important it is to you that the program includes this feature.

▲ Indicates significantly higher at 90% confidence level

# Qualified Solar Installers, TVA protection, and Savings generated top the list of 'Extremely Important' features

## Top Box Importance of Features



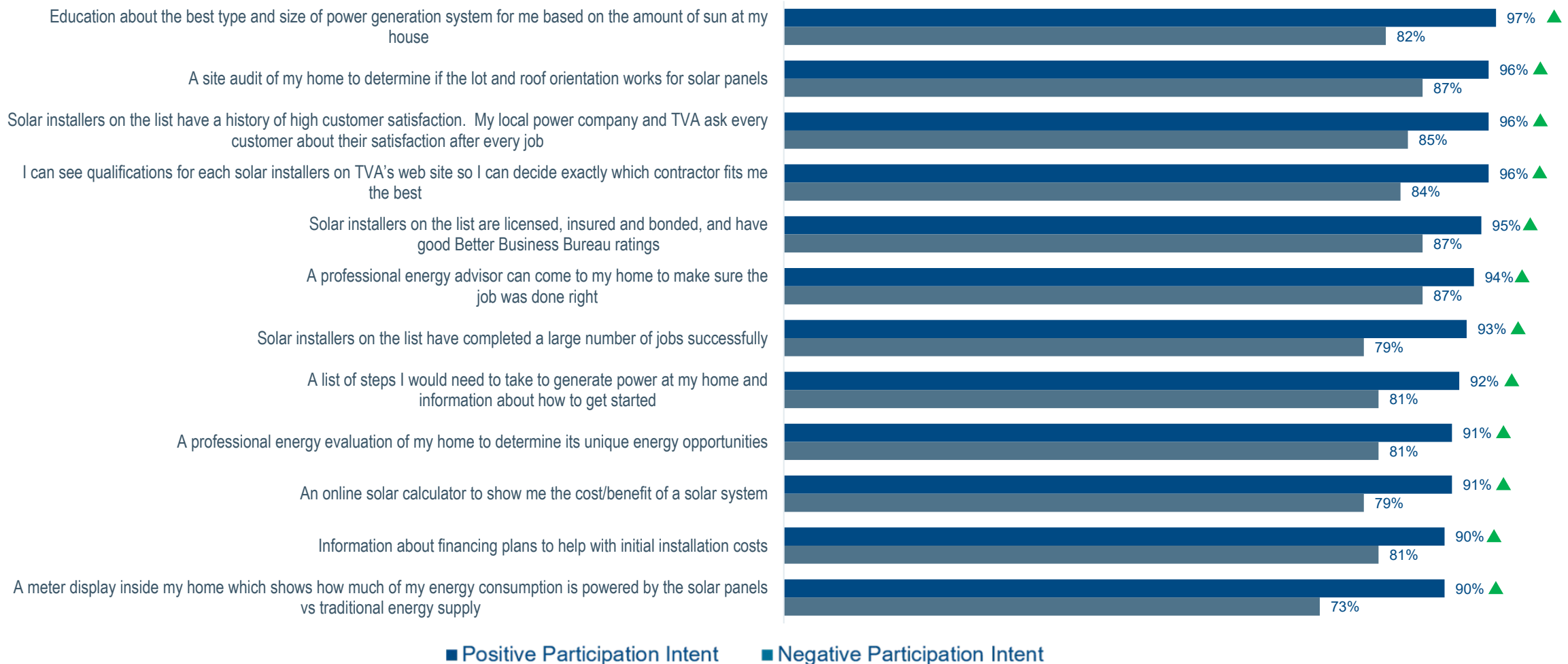
Q21A. This program would have additional features that were not included in the short description that you read before. The full list of features are shown below. We would like to know how important each feature is to you. Please read each one carefully and indicate how important it is to you that the program includes this feature.



# Likely Participants Place Higher Importance on Features

Also place higher importance on features overall - 12 below are significantly higher, with  $\geq 90\%$  Importance

## Top 2 Box Additional Feature Importance

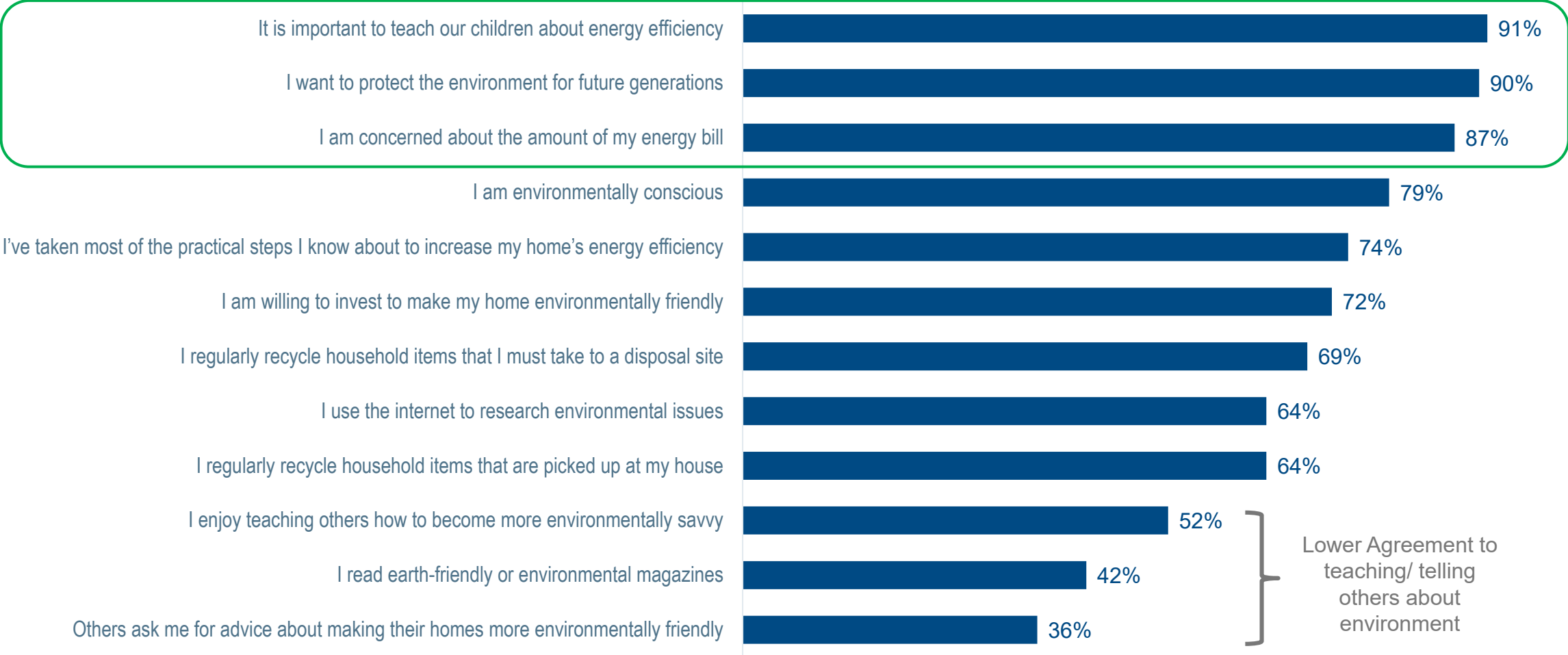


Q21A. This program would have additional features that were not included in the short description that you read before. The full list of features are shown below. We would like to know how important each feature is to you. Please read each one carefully and indicate how important it is to you that the program includes this feature.

▲ Indicates significantly higher at 90% confidence level

# Top Environmental Views surround teaching children/ protecting environment for future generations and concern about energy bills

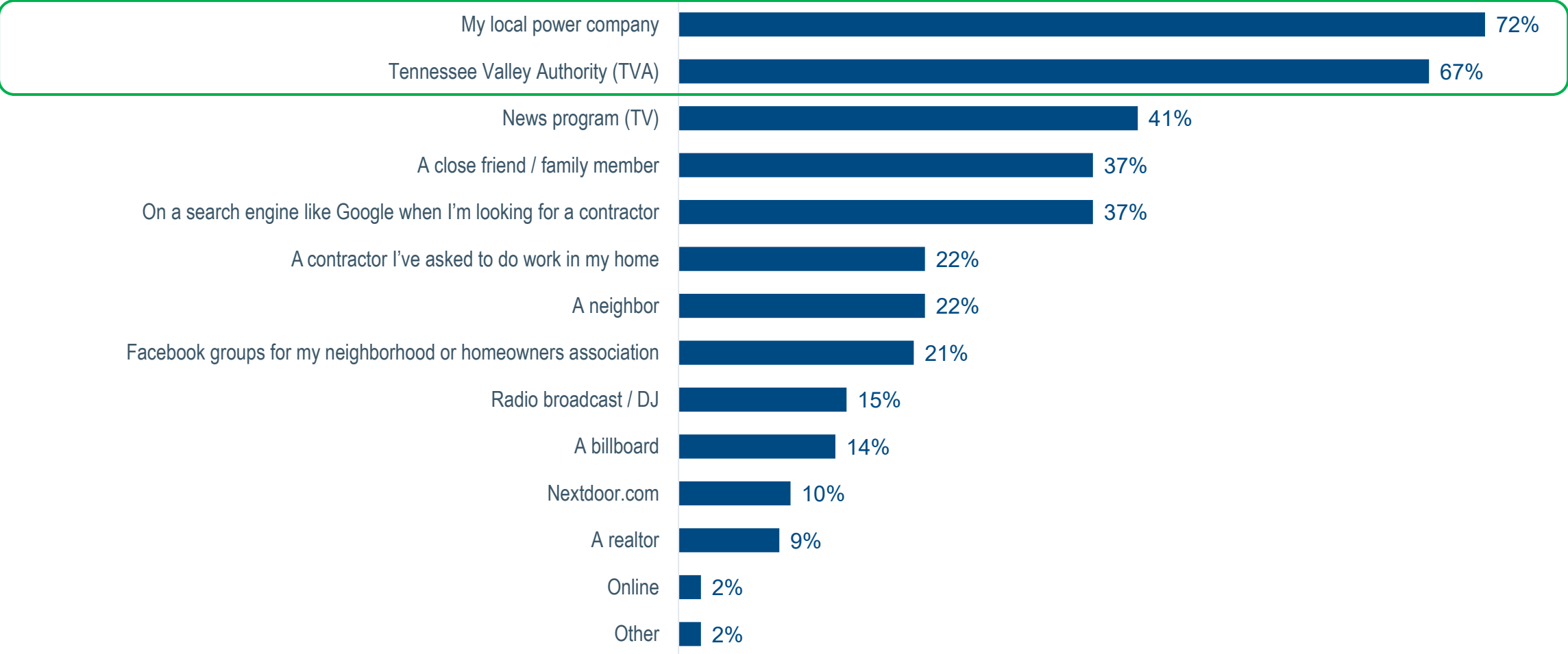
## Top 2 Box Environmental Views



Q24. Please read each of the statements below about you and your home as it relates to the environment and indicate how much do you agree or disagree with each one.

# Consumers want to be informed about Solar Programs through their LPC or TVA

## How Want to Hear About Program



Q23. What are all of the ways you would like to hear about this program?



# Understanding – How Solar works

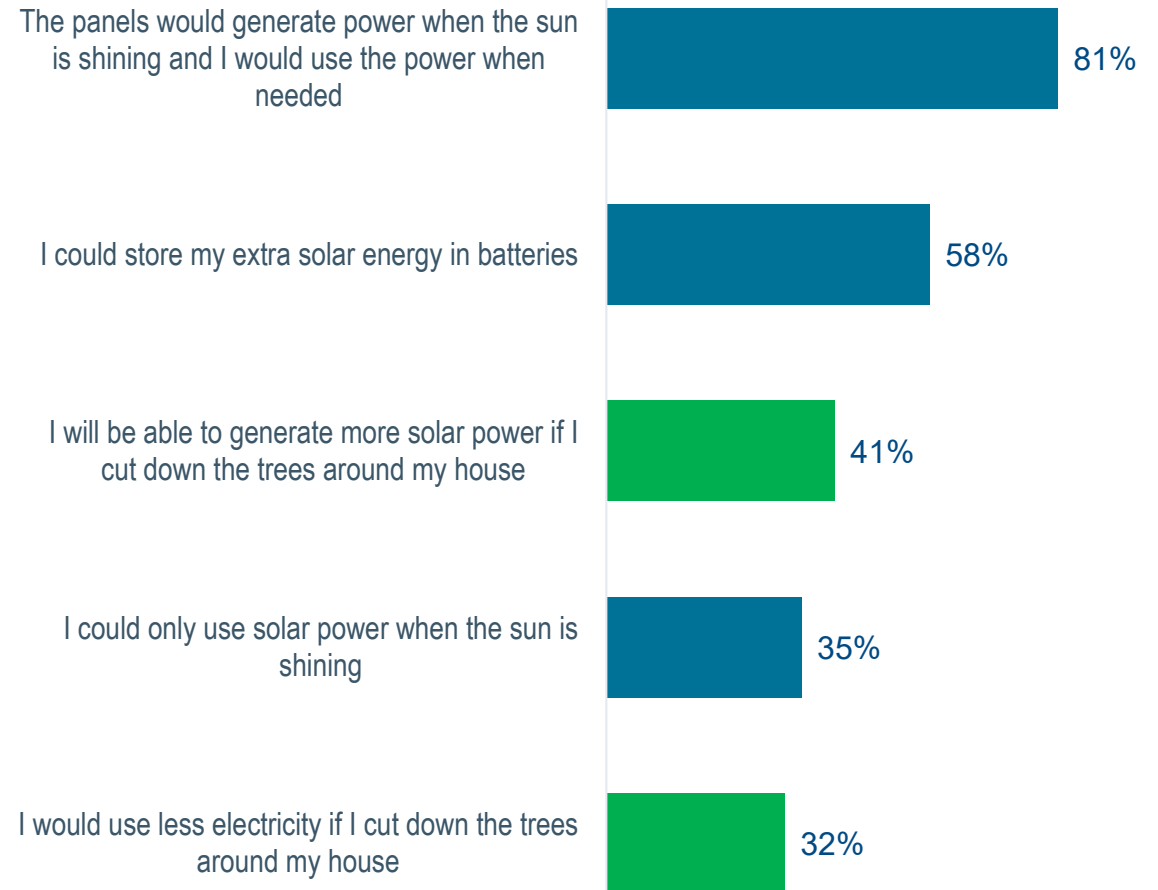
## Using & storing Solar energy

- The panels would generate power when the sun is shining and I would use the power when needed
- I could only use solar power when the sun is shining
- I could store my extra solar energy in batteries

## Conditions for Solar

- I will be able to generate more solar power if I cut down the trees around my house
- I would use less electricity if I cut down the trees around my house

## Top 2 Box Solar Panel Expectations



# Expectations – How program would work

## Effect of Solar on bill

- Solar panels could eliminate my electric bill
- Solar panels could reduce my electric bill by more than half
- Solar panels could reduce my electric bill, but just by a little
- I would save more money on my electric bill with solar panels than I would by adding insulation to my house

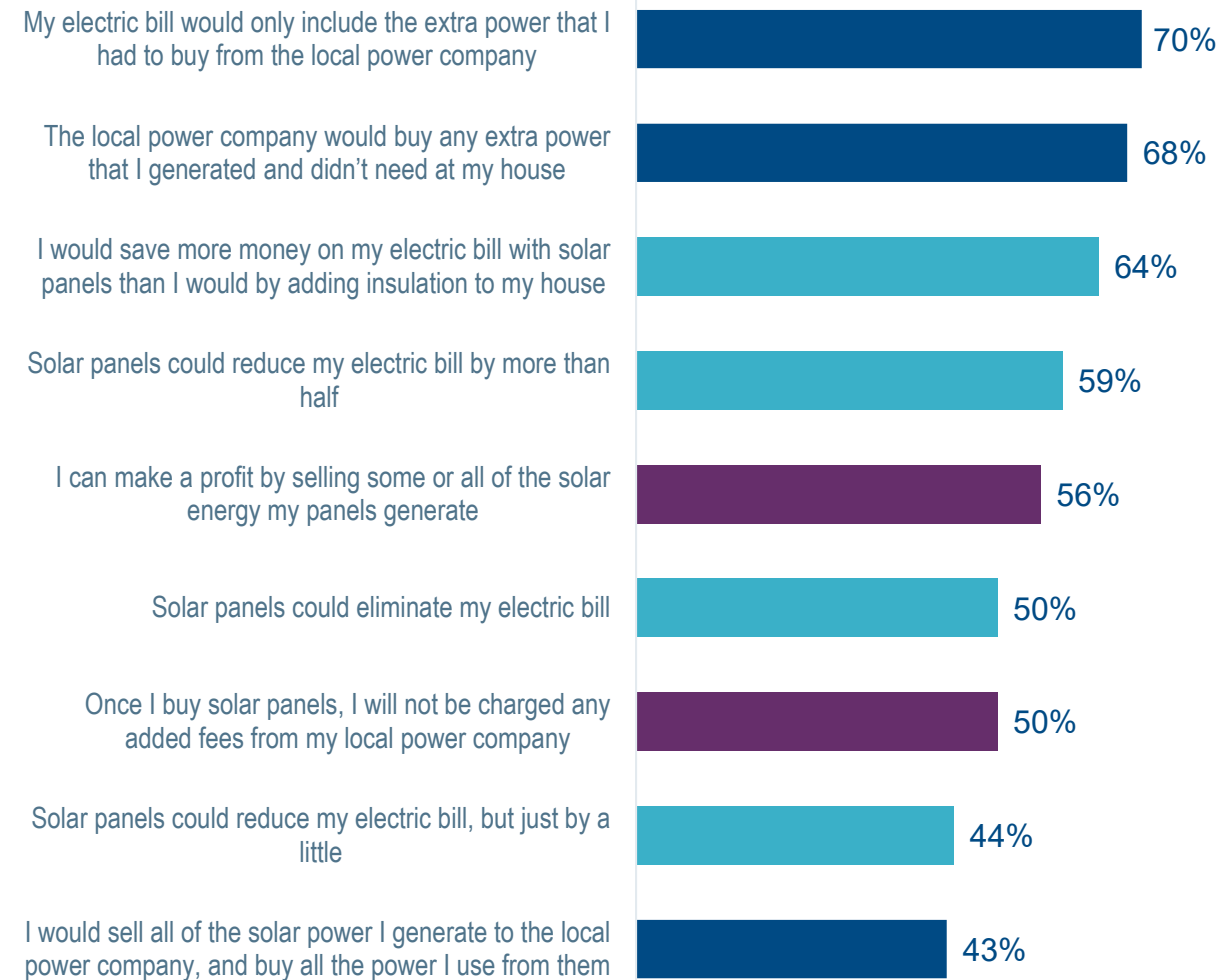
## Billing and paying for power

- My electric bill would only include the extra power that I had to buy from the local power company
- The local power company would buy any extra power that I generated and didn't need at my house
- I would sell all of the solar power I generate to the local power company, and buy all the power I use from them

## Financial aspects of Solar

- I can make a profit by selling some or all of the solar energy my panels generate
- Once I buy solar panels, I will not be charged any added fees from my local power company

## Top 2 Box Solar Panel Expectations



# Profile of Positive Participation Intenders



# Positive Participation Intenders Profile

Those who expressed a positive interest in participating are more likely to be...



## Demographics

- Male (37% vs. 23%)
- Younger 18-34 (26% vs. 13%) AND
- Middle-aged 35-49 (46% vs. 30%)
- Work full or part time (79% vs. 58%)
- Have a grad degree (35% vs. 21%)



## Home

- 1st time home-owners (54% vs. 35%)
- Have kids in HH (61% vs. 31%)
- Purchased 2-9 years ago (45% vs. 25%)
- Younger homes 5-9 years (18% vs. 5%)
- Homes are 10-19 years old (48% vs. 28%)



## EE/Environment

- Main decision maker for energy usage & improvements (62% vs. 33%)
- Have considered GPP or participated in past (18% vs. 3%)
- Multiple EE/ Environmentally friendly options (EE appliances, compost piles, organic garden)
- More likely to agree on ALL environmental views – every statement significantly higher



## LPCs/ TVA

- Significantly more favorable towards ALL LPC and TVA attitudes – all statements significantly higher



## Features

- Feel more strongly about concept features – all higher %, 3 features significantly higher
- Place higher importance on all potential features – 12 significantly higher

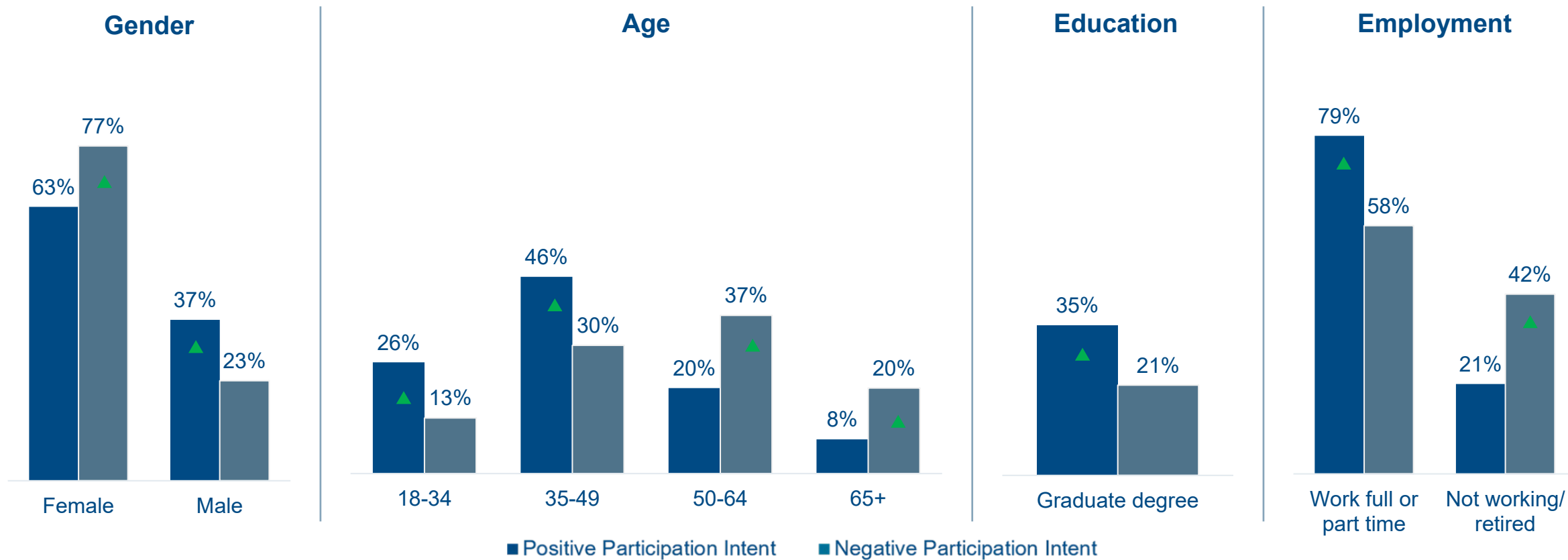


## Media

- More likely to expect to hear about from search engine, neighborhood, contractor, billboard, radio, or nextdoor.com

# Demographics Profile

- Positive purchase intenders are significantly more likely to be male, younger or young middle ages (18-49), to be working and have a graduate degree
- Non-Intenders more likely female, older, and not working/ retired



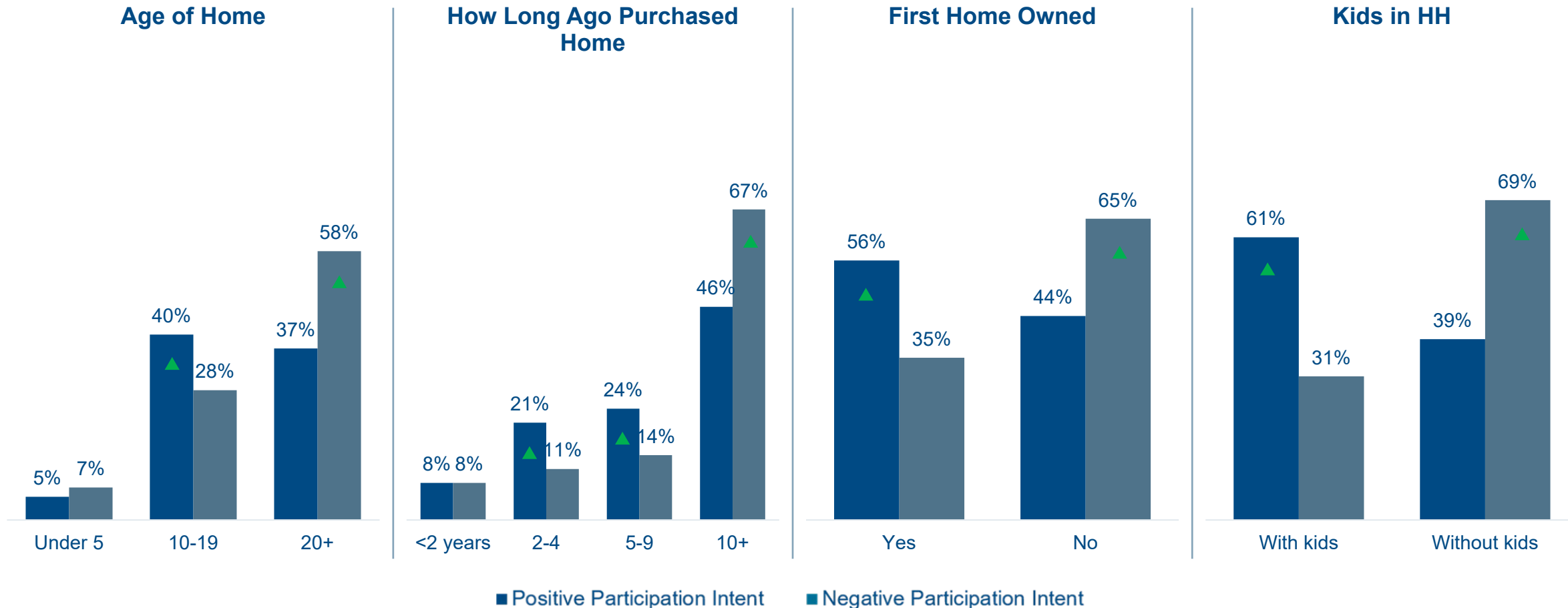
Note: We see no significant differences by state, area live in, income, ethnicity, or marital status

- Q1. What is your gender?
- Q2. What is your age?
- QD2. What is the highest level of education you have completed?
- QD3. Which describes your current employment?

▲ Indicates significantly higher at 90% confidence level

# Newer Homeowners with Kids in the HH

- They are significantly more likely to be first time homeowners with kids in the home.
- Homes are more likely to be within 5-19 years of age, purchased within 2-9 years ago (vs. non-intender homes 20+ years old, purchased 10+ years ago).



QD5. What is the age of your single-family home?

QD6. How long ago did you purchase your single-family home?

QD7. Is this the first home you owned?

QD9. What are the ages of children in your household?

▲ Indicates significantly higher at 90% confidence level



# More Environmentally Aware & Involved

- They tend to be the main decision maker for energy usage and improvements (non-intenders are joint), and have considered GPP or participated in past (non-intenders never heard of GPP).
- They also are more likely to have Multiple EE/ Environmentally friendly options on property, like EE appliances, compost piles, or organic gardens.



Q8. Who in your home is the primary decision maker for your home's energy usage and energy improvements?

Q9. Depending on where you live, you may have access to a solar panel program called Green Power Providers. Please select which of the following statements best describe your experience with Green Power Providers program.

Q10. Which of the following do you currently have in your home, or on your property?

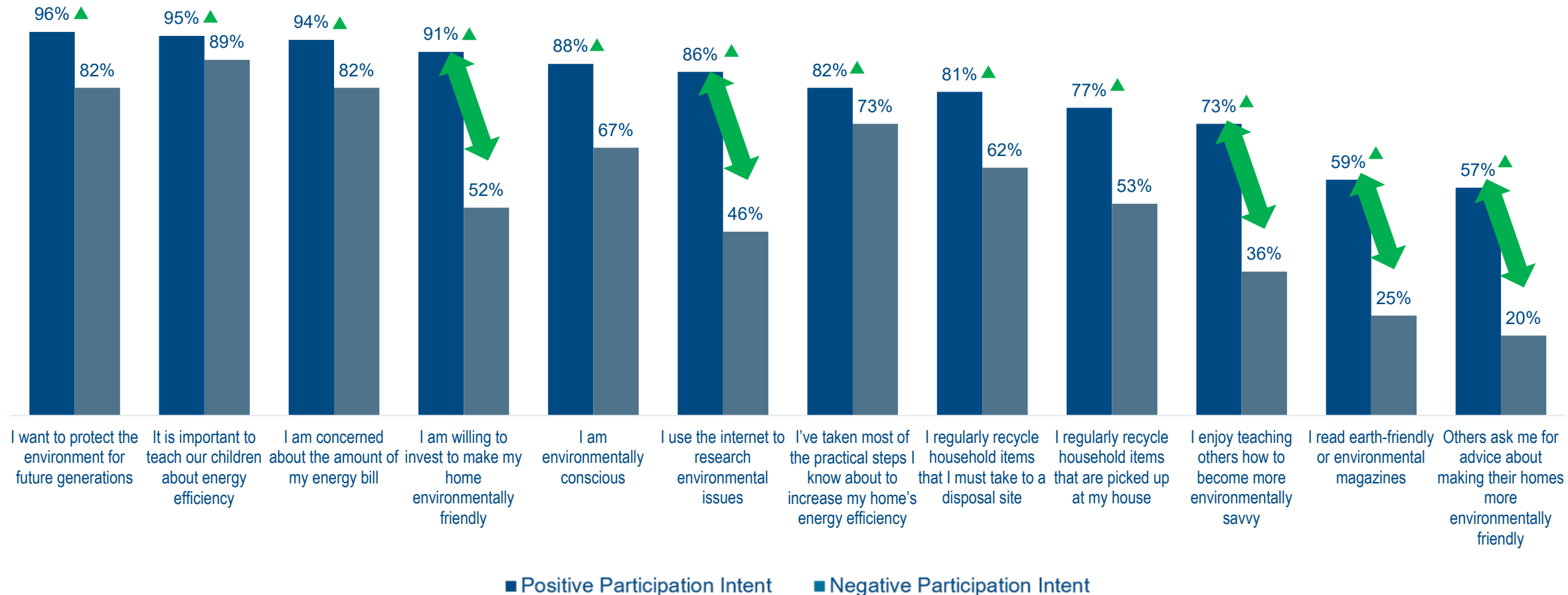
▲ Indicates significantly higher at 90% confidence level

# Stronger Environmental Viewpoints

Positive Intenders are more likely to agree on ALL environmental views - every statement is significantly higher

- Especially large differences (>30%) for being willing to invest in home, using internet to research environment, teaching others/ giving advice, and reading enviro magazines

Top 2 Box Environmental Views



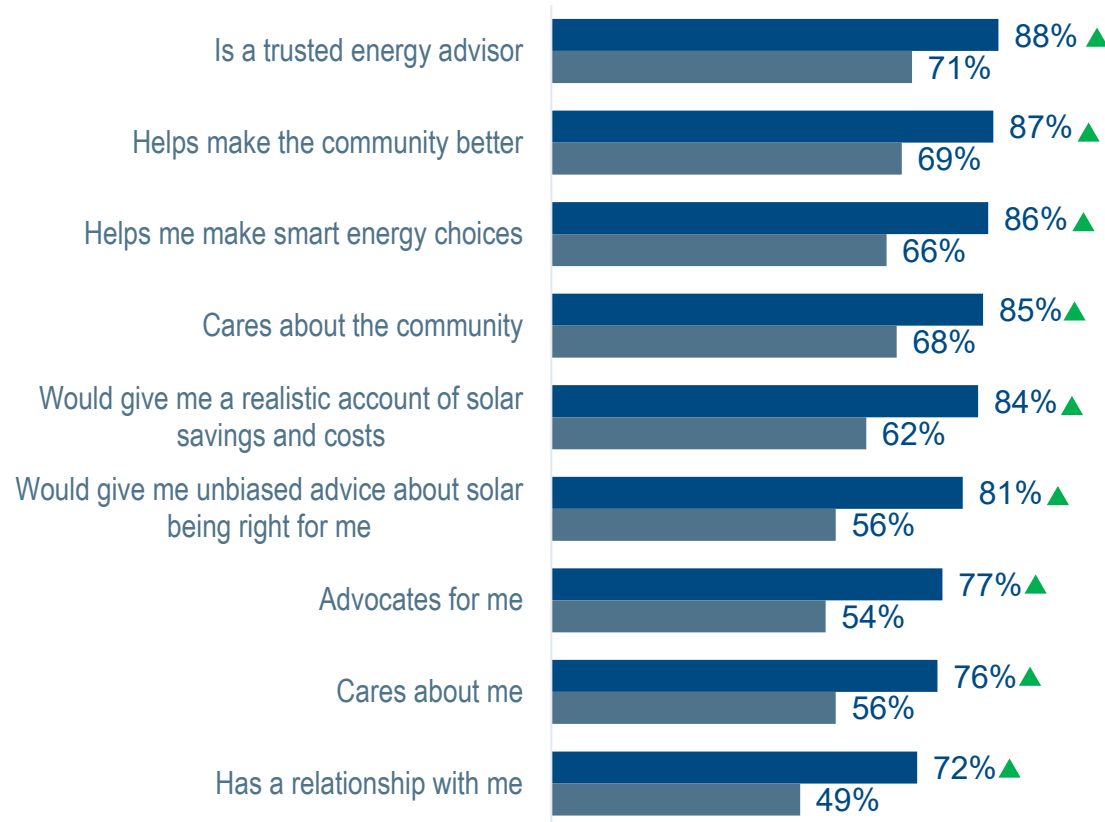
Q24. Please read each of the statements below about you and your home as it relates to the environment and indicate how much do you agree or disagree with each one.

▲ Indicates significantly higher at 90% confidence level

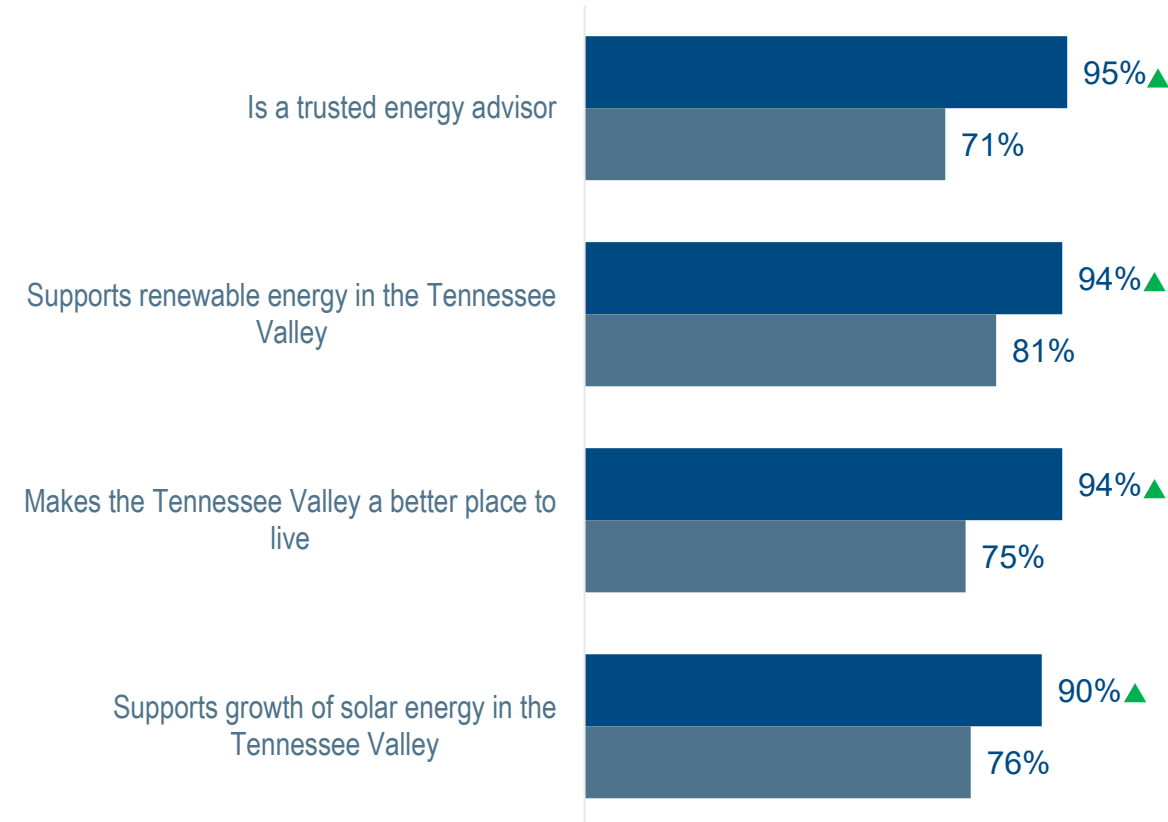
# More Favorable Sentiments attributed to LPCs & TVA

Positive Intenders are significantly more favorable towards ALL LPC and TVA attitudes - all statements significantly higher than non-intenders

## Top 2 Box LPC Attitudes



## Top 2 Box TVA Attitudes



■ Positive Participation Intent ■ Negative Participation Intent

Q20. If your local power company made a program like this available, how much would you agree or disagree with the following?

Q21. If the Tennessee Valley Authority (TVA) made a program like this available, how much would you agree or disagree with the following?

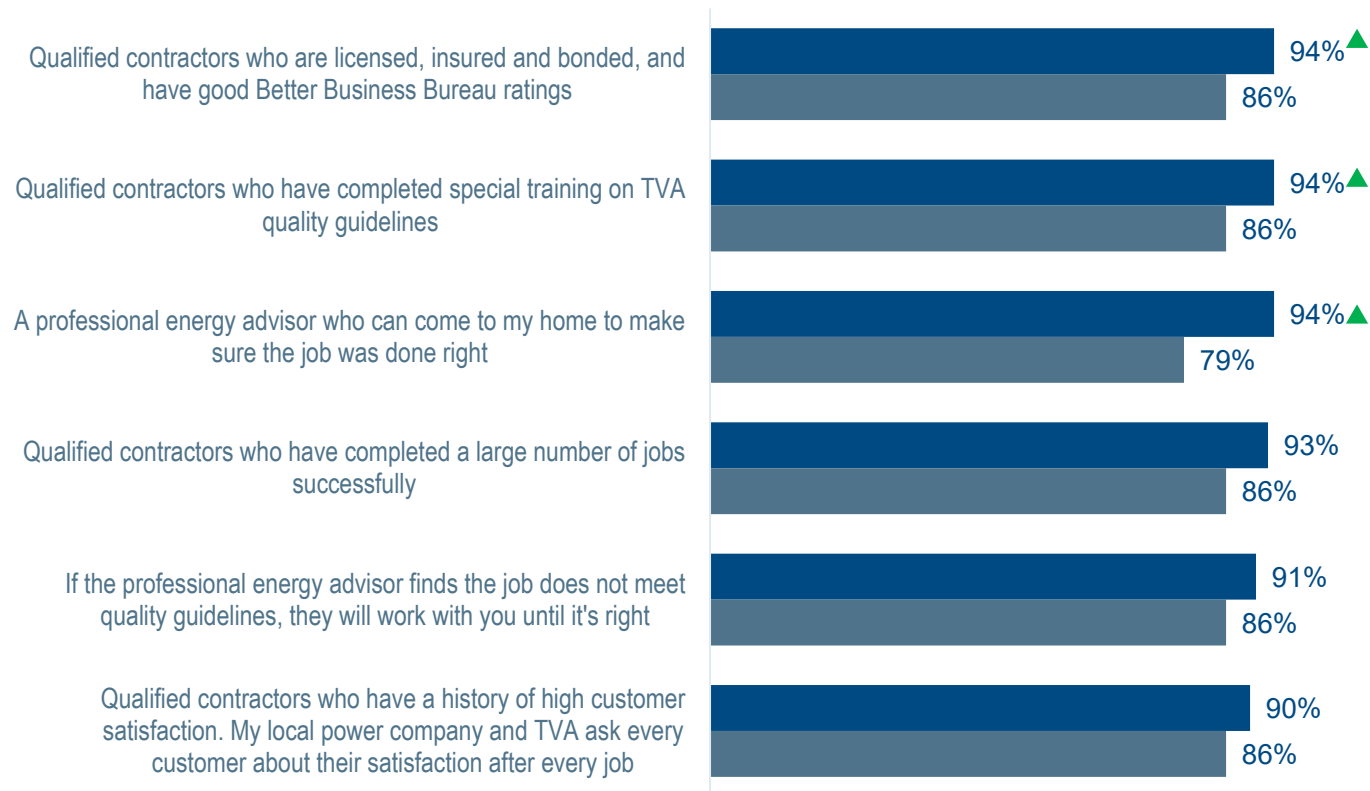
▲ Indicates significantly higher at 90% confidence level



# Place Higher Importance on 'Confidence' Features

They feel more strongly about features – for featured in the Confidence concept they evaluated, 3 features are significantly higher

## Top 2 Box Feature Importance



■ Positive Participation Intent ■ Negative Participation Intent

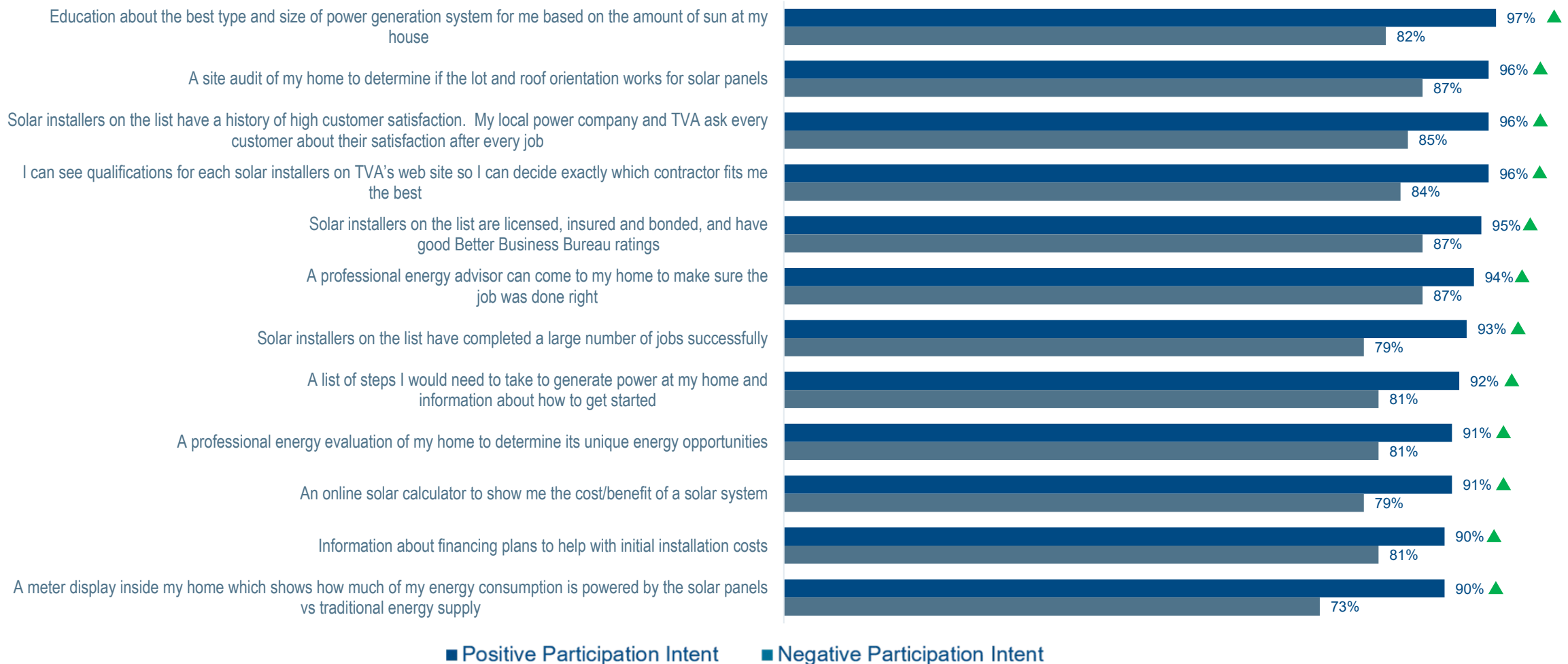
Q19B. The program would include all of the features listed in the description you read. We would like to know how important each feature is to you. Please read each one carefully, and indicate how important it is to you that the program includes this feature.

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# Place Higher Importance on Features

Also place higher importance on features overall - 12 below are significantly higher, with  $\geq 90\%$  Importance

## Top 2 Box Additional Feature Importance



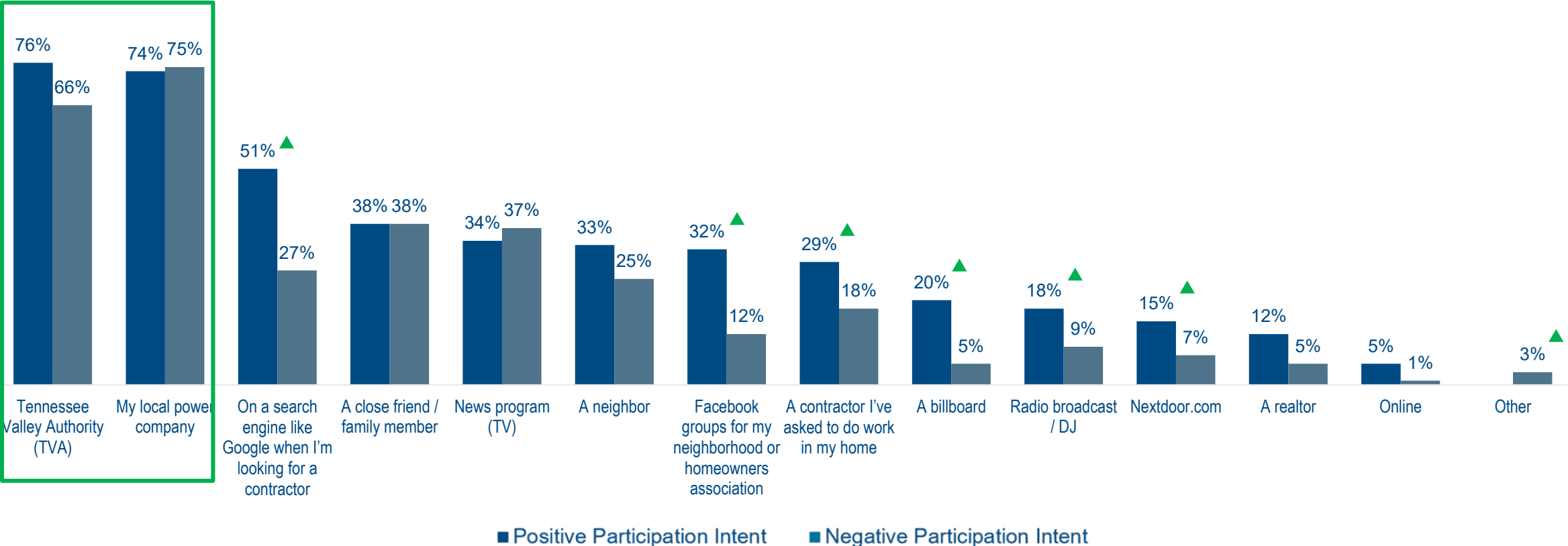
Q21A. This program would have additional features that were not included in the short description that you read before. The full list of features are shown below. We would like to know how important each feature is to you. Please read each one carefully and indicate how important it is to you that the program includes this feature.

▲ Indicates significantly higher at 90% confidence level

# Media Expectations differ somewhat

- While many media expectations for hearing about the program are similar (Top 2 choices the same), Positive intenders are more likely to expect to hear from search engine, neighborhood, contractor, billboard, radio, or nextdoor.com.

Ways to Hear about Program





# Installers

# Solar Installer Quantitative Concept Test Findings

## 1. **Solar Installers preferred the Stable Solar Growth program.**

- When comparing the two concepts directly, Solar Installers prefer this concept about 2:1 vs Installer Network.
- Installers question why they need an Installer Network when they are already NABCEP certified, and like and trust that program.

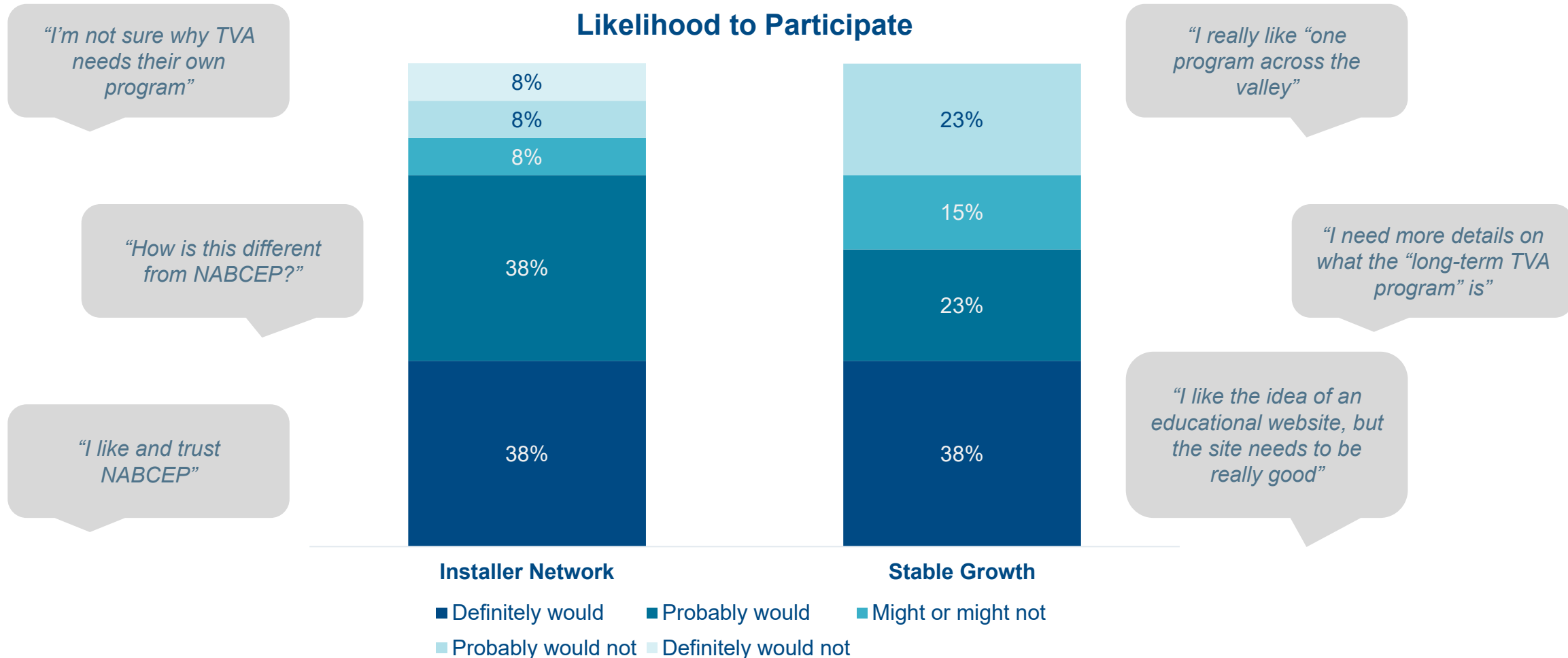
## 2. **The most important benefit to solar installers is having a single set of rules across LPCs.**

## 3. **Stable Solar Growth also reflects most positively on LPCs and TVA.**

- Installers' opinions of the LPCs are generally positive, and installers view both programs as showing that LPCs support solar, which makes them think the same or slightly more positively about their LPCs.
- Installers' opinions of TVA are more mixed, and installers were also more mixed in how they viewed TVA in light of the two programs. They believe the programs both show TVA is interested in solar growth (viewed positively), but there was also skepticism driven by past solar program changes by TVA.

# About 1/3 of installers “Definitely would” participate in either program

Likelihood to Participate



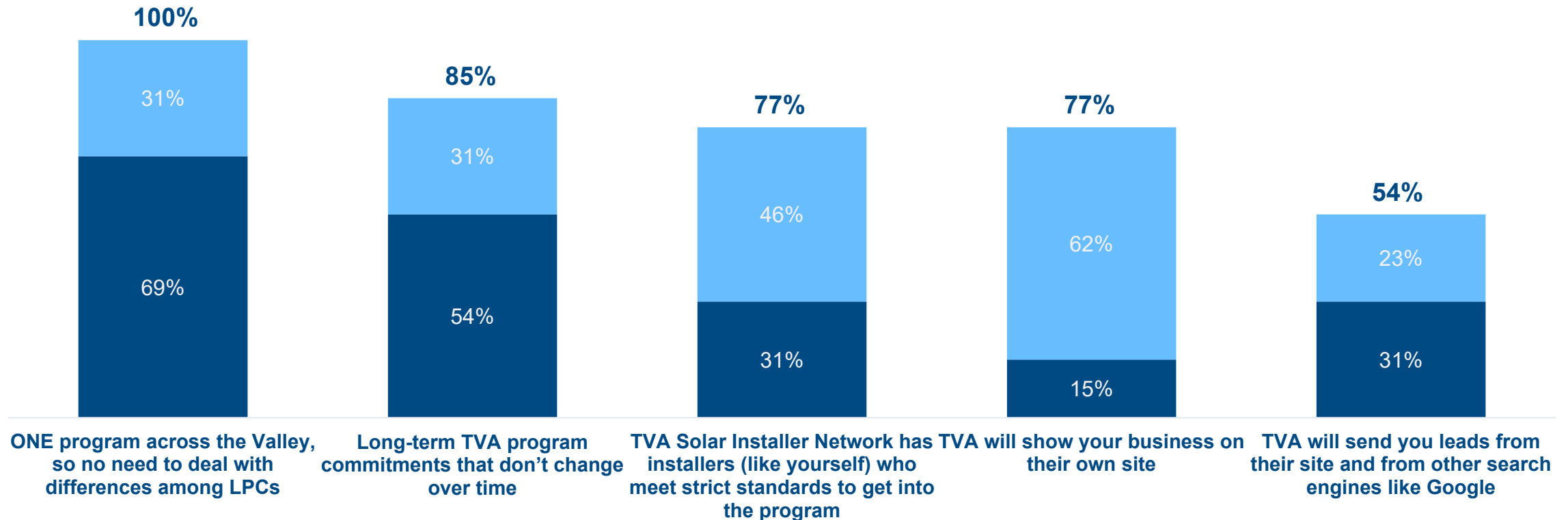
How likely would you be to participate in this program? Definitely would, Probably would, Might of Might Not, Probably would not, Definitely would not  
 If respond Definitely/ Probably Would ask: What are all of the reasons why you would like to participate in this program?  
 If respond Might/ Might Not or Definitely/ Probably Would NOT ask: What are all of the reasons why you would not like to participate in this program?



# The most important benefit to solar installers is ONE Program across Valley

## Benefit Importance

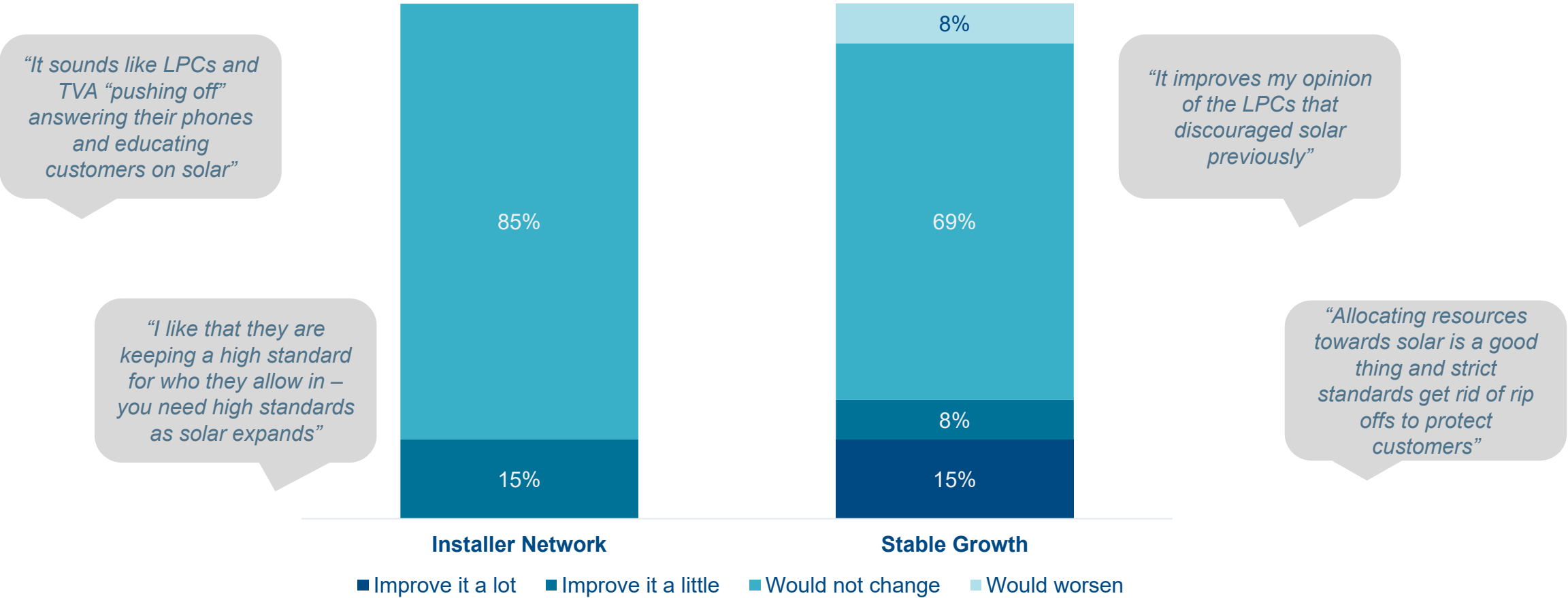
■ Very Important ■ Somewhat Important



How important are each of the following benefits of a solar program to you, as a solar installer? Very Important, Somewhat Important, Neither Important nor Unimportant, Somewhat Unimportant, Very Unimportant

# Stable Solar Growth would most positively affect solar installers' opinions of the LPCs

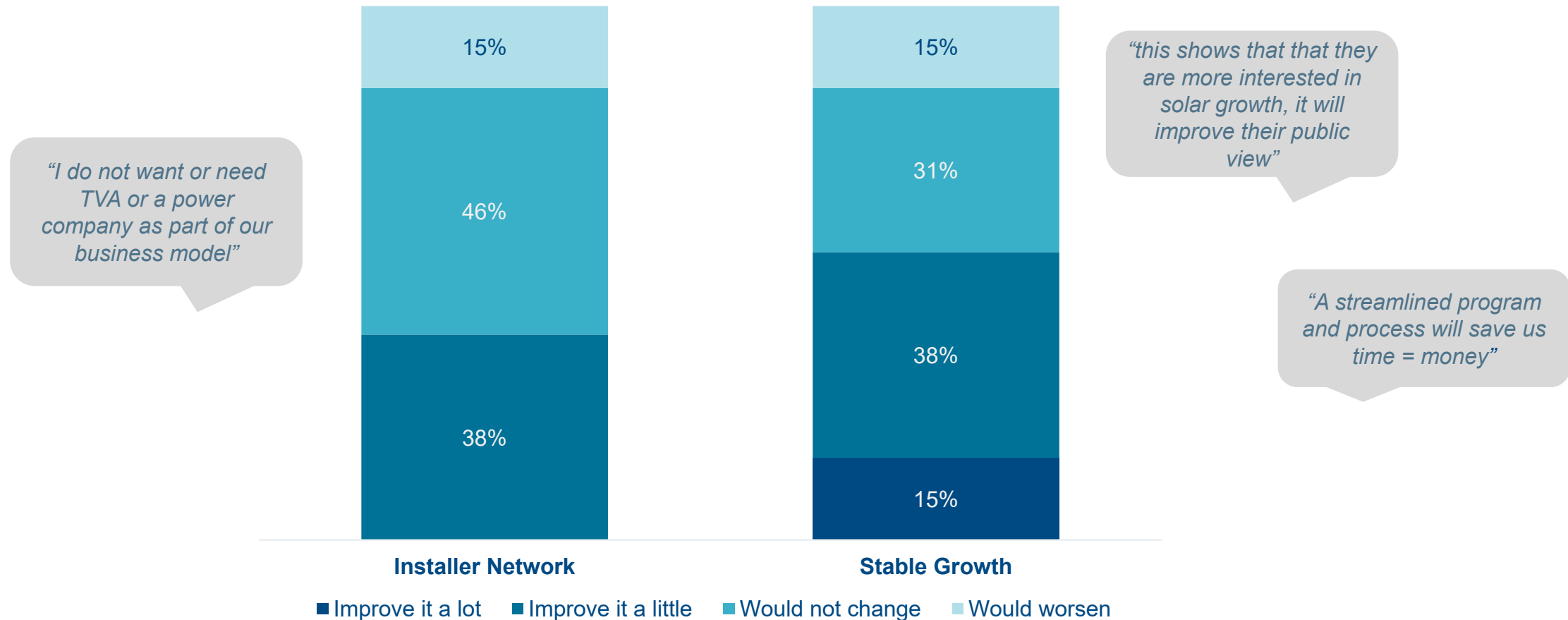
How Program Affects Opinion of LPC



How would this program affect your opinion of the local power company in your area if It offered this solar program? Improve it a lot, Improve it a little, Would not change, Would worsen  
Please explain why you responded this way towards the local power company

# Stable Solar Growth would most improve solar installers' opinions of TVA

## How Program Affects Opinion of TVA



How would this program affect your opinion of TVA if it offered this solar program? Improve it a lot, Improve it a little, Would not change, Would worsen  
Please explain why you responded this way towards TVA



# APPENDIX

## Homeowner Concept Test Results – Detailed

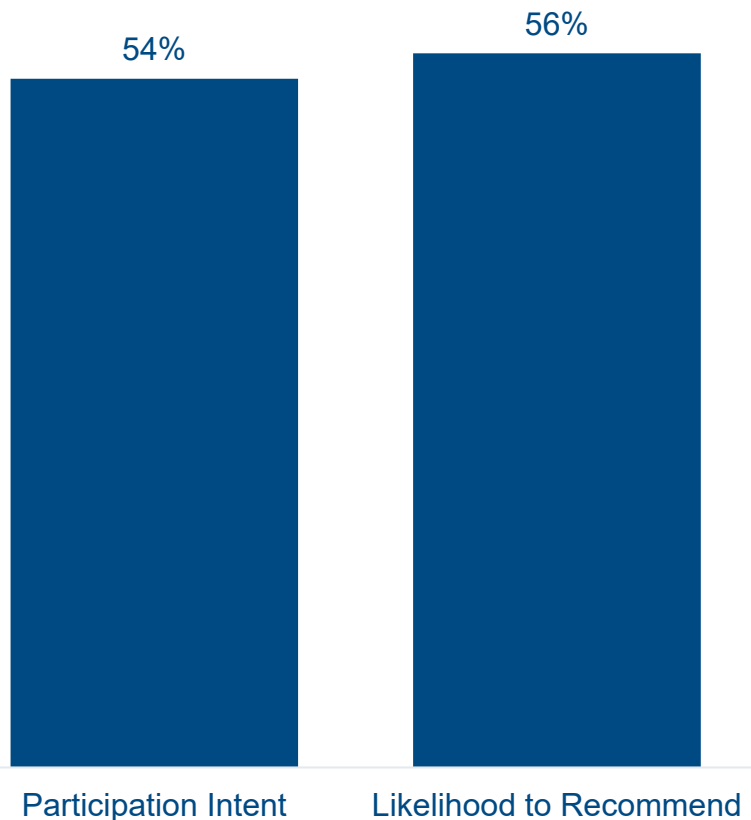
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# Participation & Recommendation Intent; Likes & Dislikes (Concept C – Confidence)

Concept 'Likes' surround finding qualified installers that get the job done right

## T2B Participation Intent & T2B Likelihood to Recommend



*[I like that I] can easily choose a qualified installer with guidance and follow up by TVA ensuring that job is done right.*

*I like that they have picked out good contractors who will get the job done and sounds like it would be done right and on time.*

*If I could find a trustworthy contract to do the work that is certified and approved by my power company, then that would take a lot of the work and worry out of the process.*

*The risk of problems is too great for something that isn't essential at this time.*

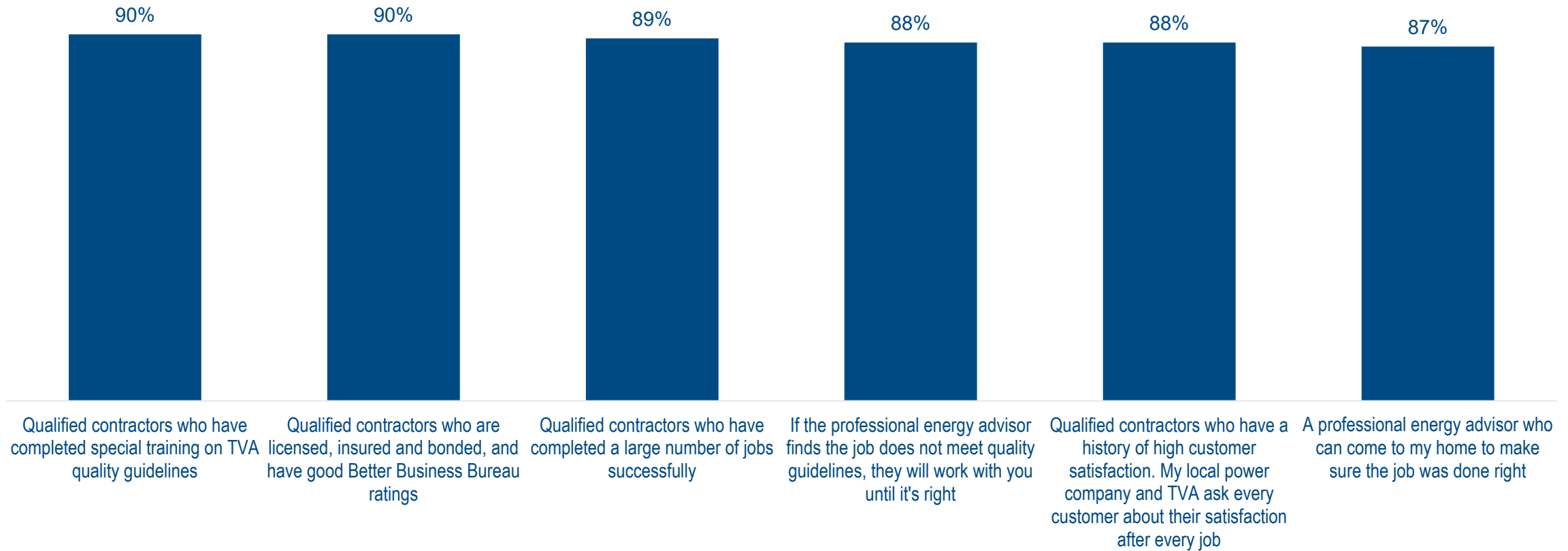
Q14. Based on the program description you just saw, how likely would you be to participate in the program?

Q18. Based on the program description you just saw, how likely would you be to tell other people about this program?

# Importance of Concept Features (Concept C – Confidence)

All features are equally high in importance, with  $\geq 87\%$  who feel each is extremely/ very important

Concept C (Confidence) – T2B Feature Importance

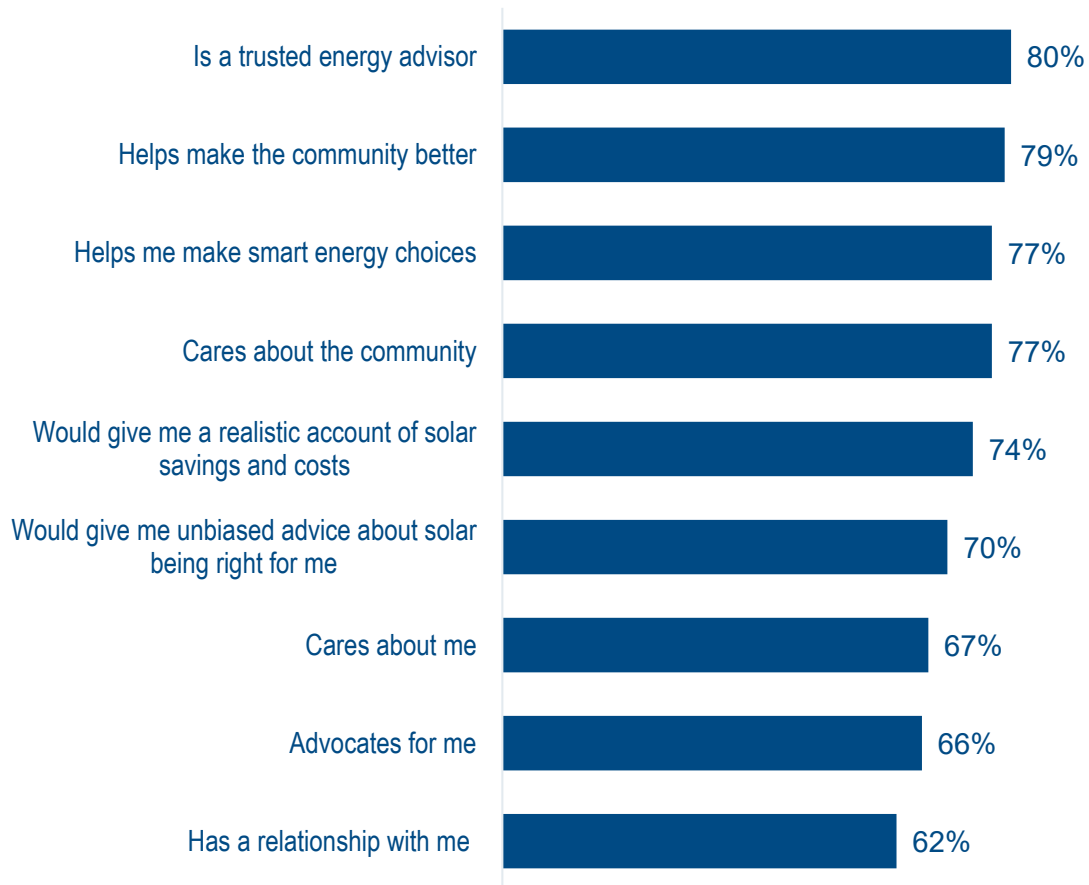


Q19A. The program would include all of the features listed in the description you read. We would like to know how important each feature is to you. Please read each one carefully, and indicate how important it is to you that the program includes this feature.

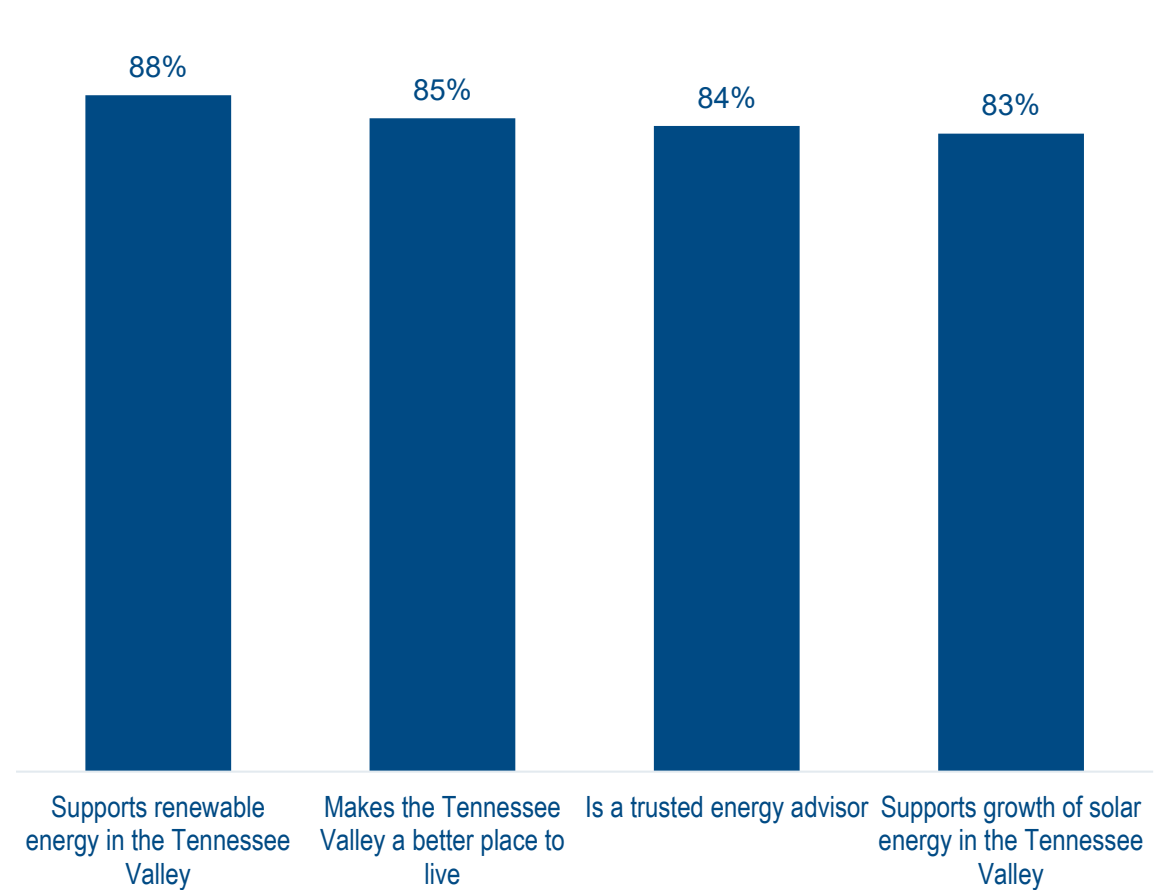
# Affinity towards LPCs/ TVA (Concept C – Confidence)

'Confidence' results in the strongest affinity for LPCs and TVA

## LPC – T2B Agreement (Strongly/ Somewhat Agree)



## TVA – T2B Agreement (Strongly/ Somewhat Agree)



Q20. If your local power company made a program like this available, how much would you agree or disagree with the following? My local power company...

Q21. If the Tennessee Valley Authority (TVA) made a program like this available, how much would you agree or disagree with the following? The TVA...

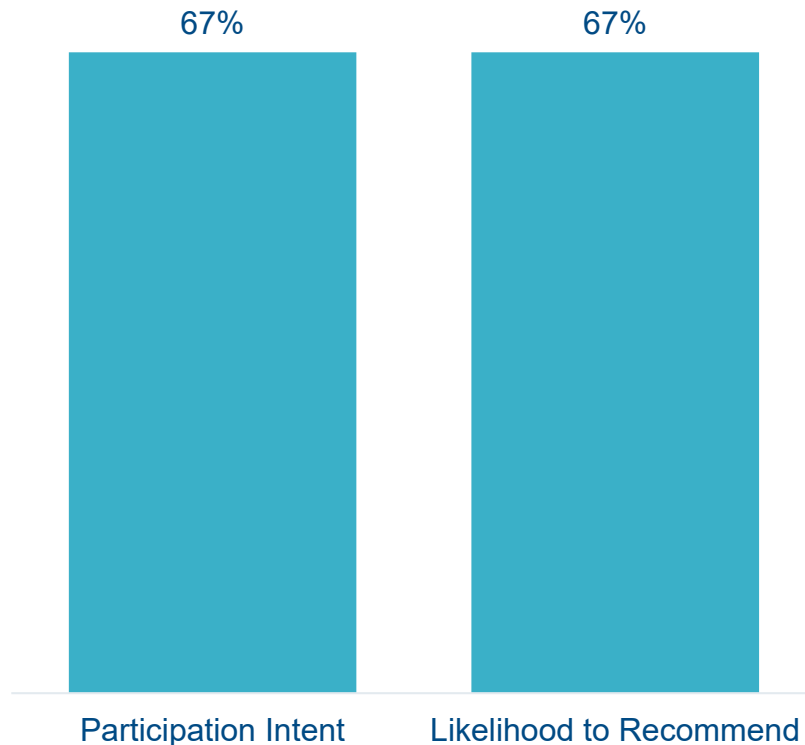


# Participation & Recommendation Intent; Likes & Dislikes (Control Concept G – GPP Current)

The Control Concept is among the highest of all concepts for Participation Intent and Likelihood to Recommend

- Concept 'Likes' are primarily about saving energy and saving, or even making money

**T2B Participation Intent &  
T2B Likelihood to Recommend**



*I love the thought that I can generate my own power and actually sell some as well.*

*I like the idea of saving energy and the busy work being done by someone else.*

*The things I LIKE about the program are that I could provide green energy for more than just myself. I also like that I would get paid for this energy I provide so I could potentially eliminate my electric bill.*

*I don't want the hassle of installing solar panels, nor selling back the (extra) generated power*

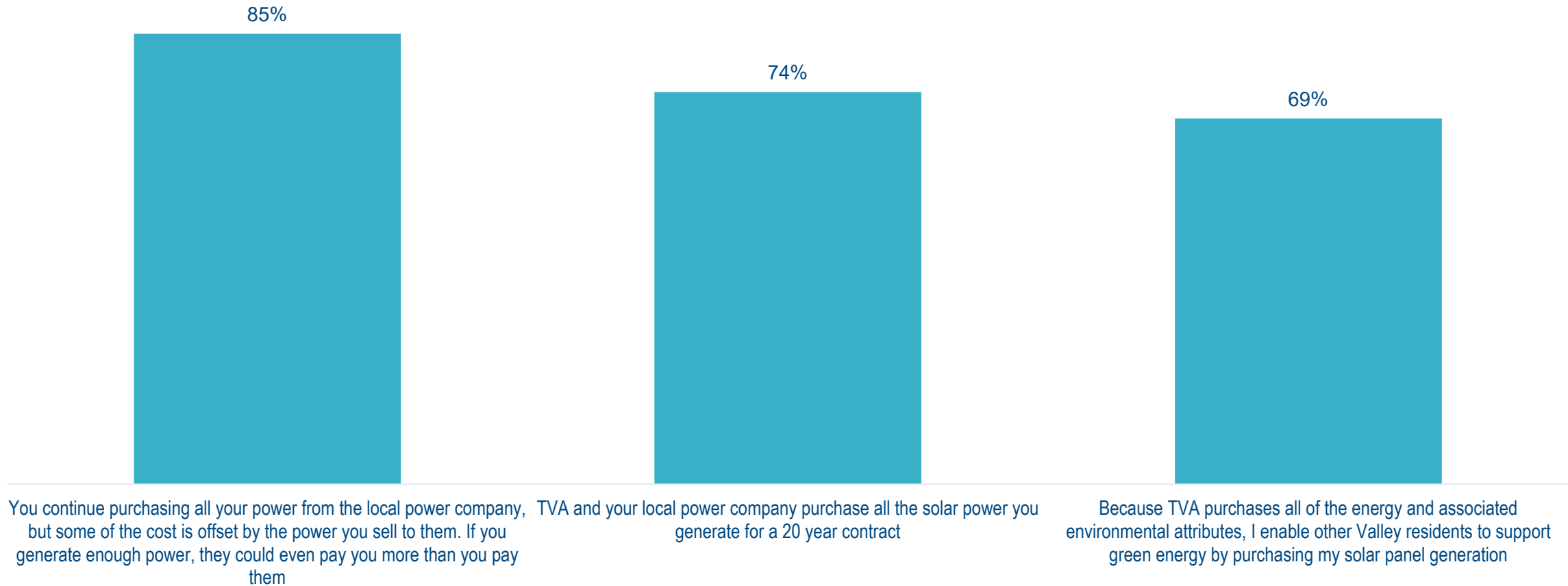
Q14. Based on the program description you just saw, how likely would you be to participate in the program?

Q18. Based on the program description you just saw, how likely would you be to tell other people about this program?

# Importance of Concept Features (Control Concept G – GPP Current)

The possibility of making money on solar panels is most important feature of the control concept

## Concept G (GPP Current) – T2B Feature Importance



Q19A. The program would include all of the features listed in the description you read. We would like to know how important each feature is to you. Please read each one carefully, and indicate how important it is to you that the program includes this feature.

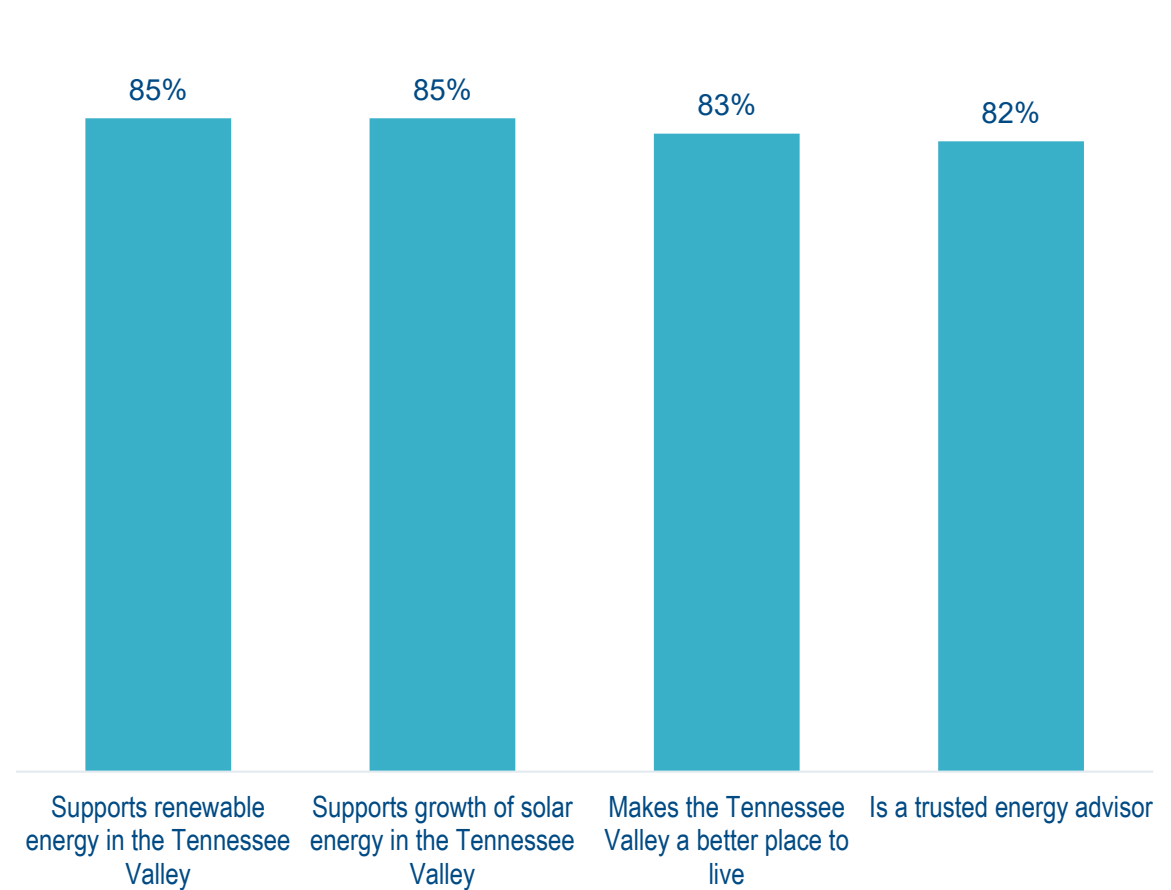
# Affinity towards LPCs/ TVA (Control Concept G – GPP Current)

Control concept results in directionally lower affinity for LPCs and TVA in most areas than 'Confidence, with two exceptions – 'Has a Relationship with Me' for LPCs and 'Supports growth of Solar' for TVA

## LPC – T2B Agreement (Strongly/ Somewhat Agree)



## TVA – T2B Agreement (Strongly/ Somewhat Agree)



Q20. If your local power company made a program like this available, how much would you agree or disagree with the following? My local power company...

Q21. If the Tennessee Valley Authority (TVA) made a program like this available, how much would you agree or disagree with the following? The TVA...

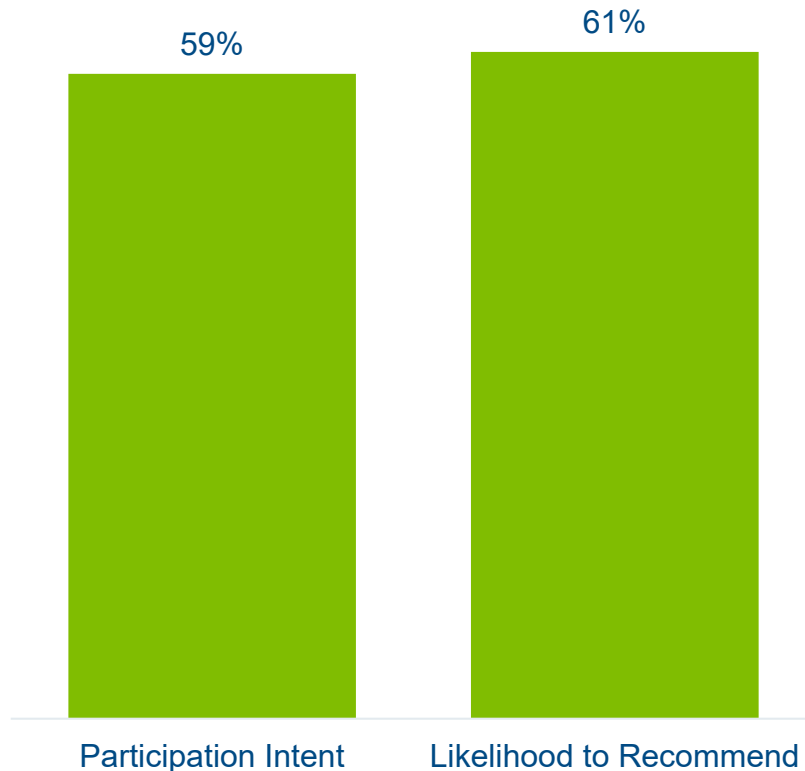


# Participation & Recommendation Intent; Likes & Dislikes (Concept M – Understand Money)

'Understand Money' has relatively low Likelihood to Participate, with ~average Likelihood to Reco

- 'Likes' are about understanding savings and power used from solar

**T2B Participation Intent &  
T2B Likelihood to Recommend**



*All of it, I like the calculator, the savings put on your bill, the meter inside your home.*

*I liked the fact that you can actually look at the amount of power being used and just how much is from the solar panels.*

*I really like that there is a meter to see how much energy is solar vs. standard. I also like that the bill would show the savings each month.*

*It is quite complicated.*

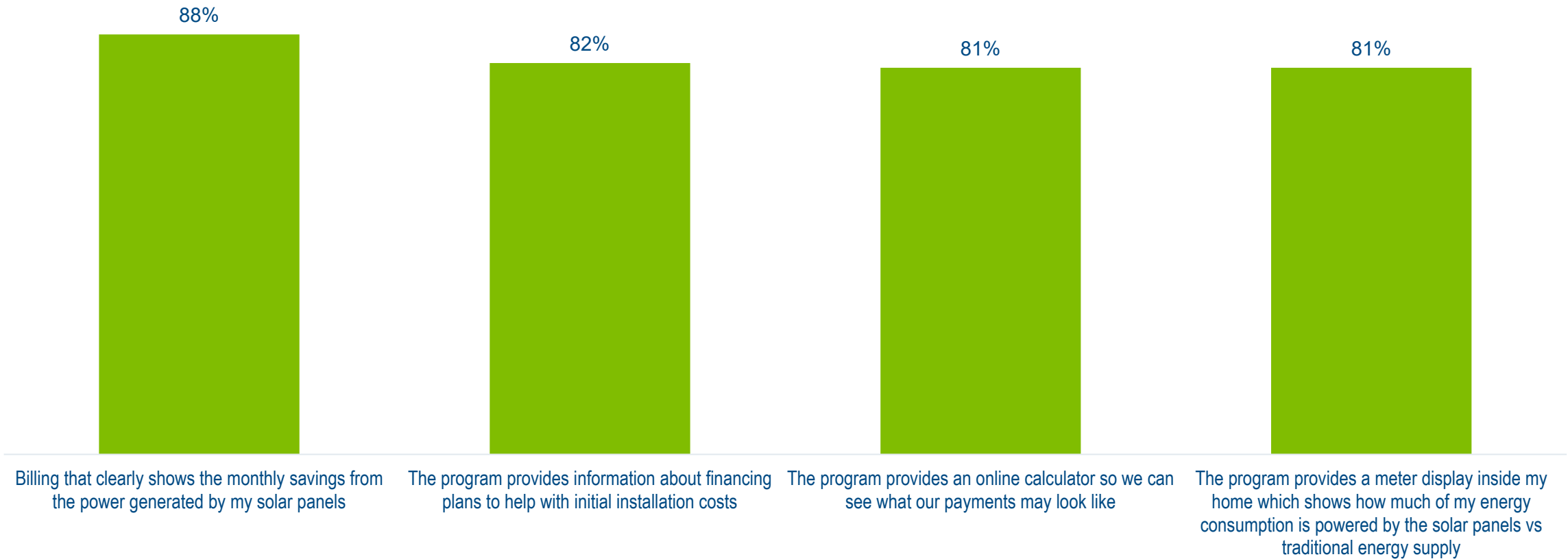
Q14. Based on the program description you just saw, how likely would you be to participate in the program?

Q18. Based on the program description you just saw, how likely would you be to tell other people about this program?

# Importance of Concept Features (Concept M – Understand Money)

All features have similar importance, with >80% who feel each is extremely/ very important

## Concept M (Understand Money) – T2B Feature Importance

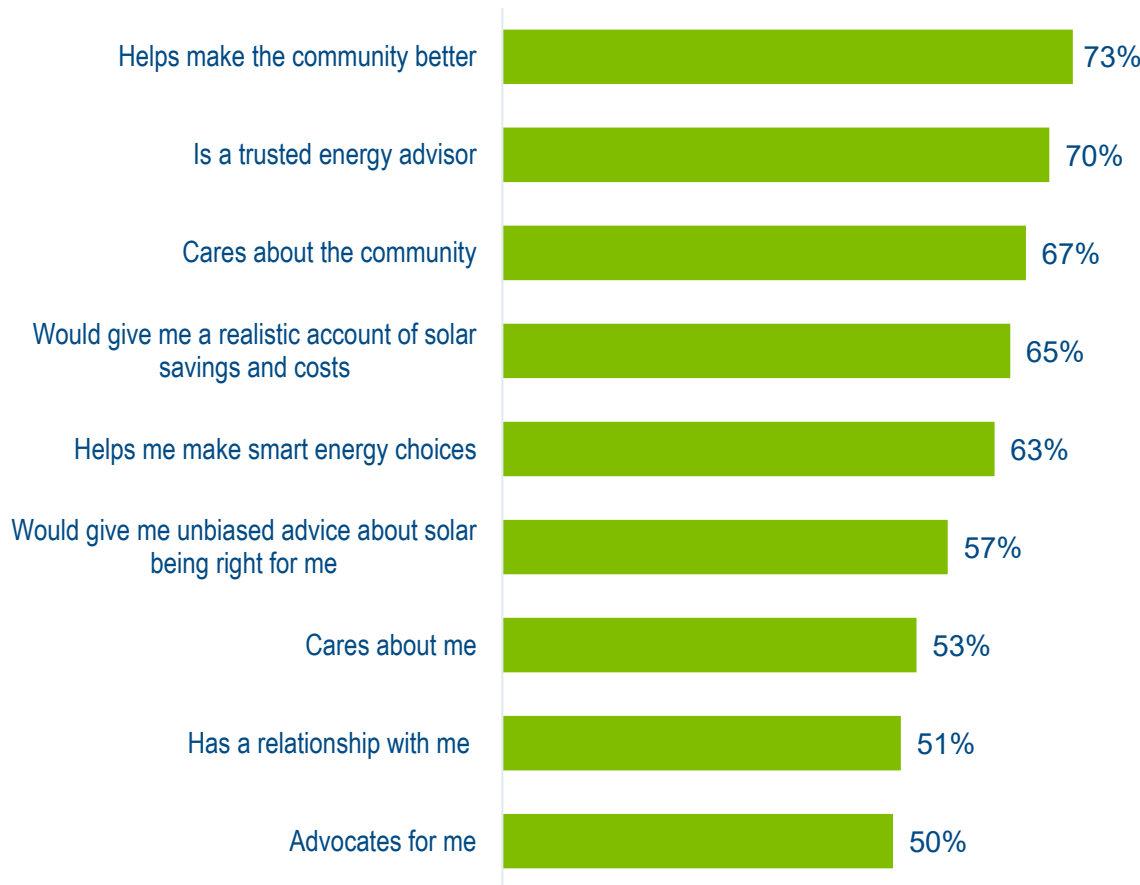


Q19A. The program would include all of the features listed in the description you read. We would like to know how important each feature is to you. Please read each one carefully, and indicate how important it is to you that the program includes this feature.

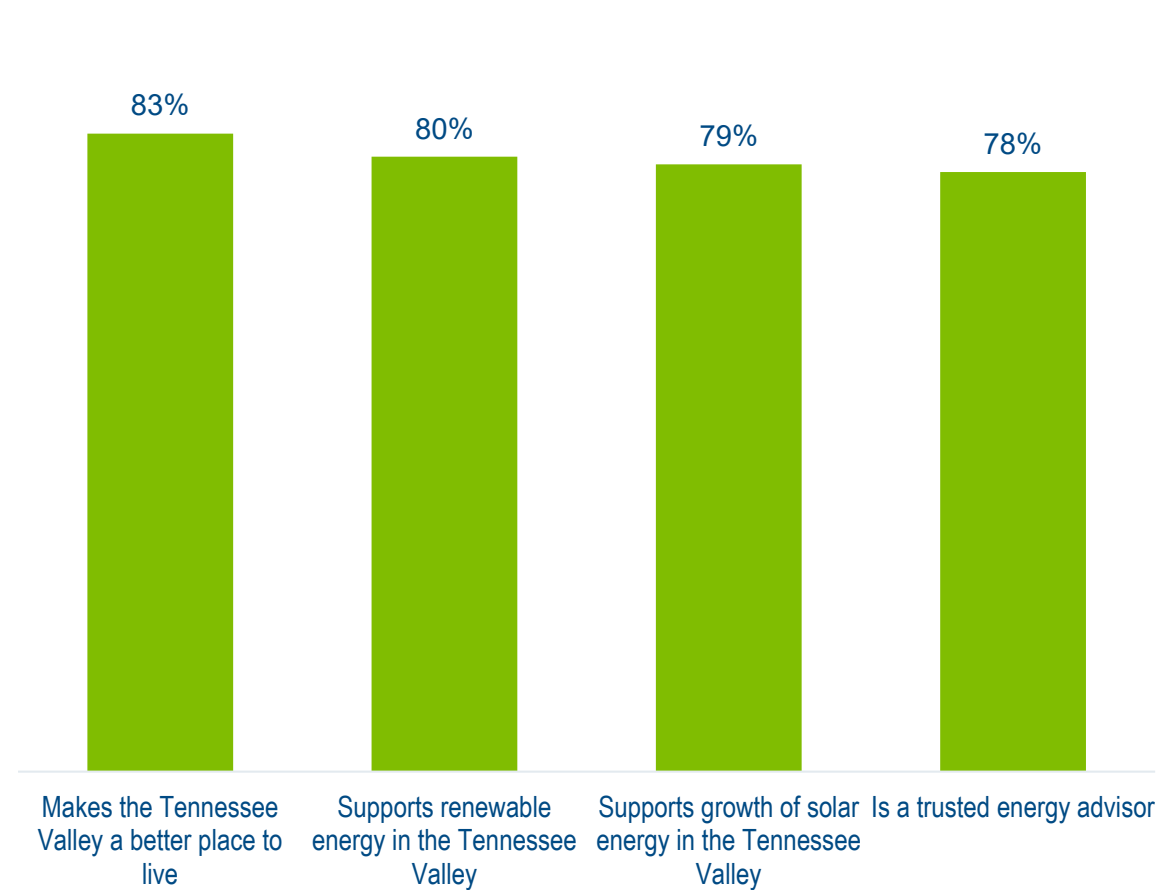
# Affinity towards LPCs/ TVA (Concept M – Understand Money)

'Making Money' has the lowest affect on LPCs and TVA of all concepts tested

## LPC – T2B Agreement (Strongly/ Somewhat Agree)



## TVA – T2B Agreement (Strongly/ Somewhat Agree)



Q20. If your local power company made a program like this available, how much would you agree or disagree with the following? My local power company...

Q21. If the Tennessee Valley Authority (TVA) made a program like this available, how much would you agree or disagree with the following? The TVA...



# Participation & Recommendation Intent; Likes & Dislikes (Concept R – Renewables)

'Renewables' has the second highest of all concepts for Participation Intent and Likelihood to Recommend

- 'Likes' are about understanding savings and power used from solar

**T2B Participation Intent & T2B Likelihood to Recommend**

65%



Participation Intent

63%



Likelihood to Recommend

*I like that I could see how much of my power is coming from solar panels.*

*I like that it gives me a detailed explanation of how my energy usage is being affected by the solar panels vs traditional energy.*

*I can help the environment and I can see the amount I save each month.*

*Would cost too much to install system.*

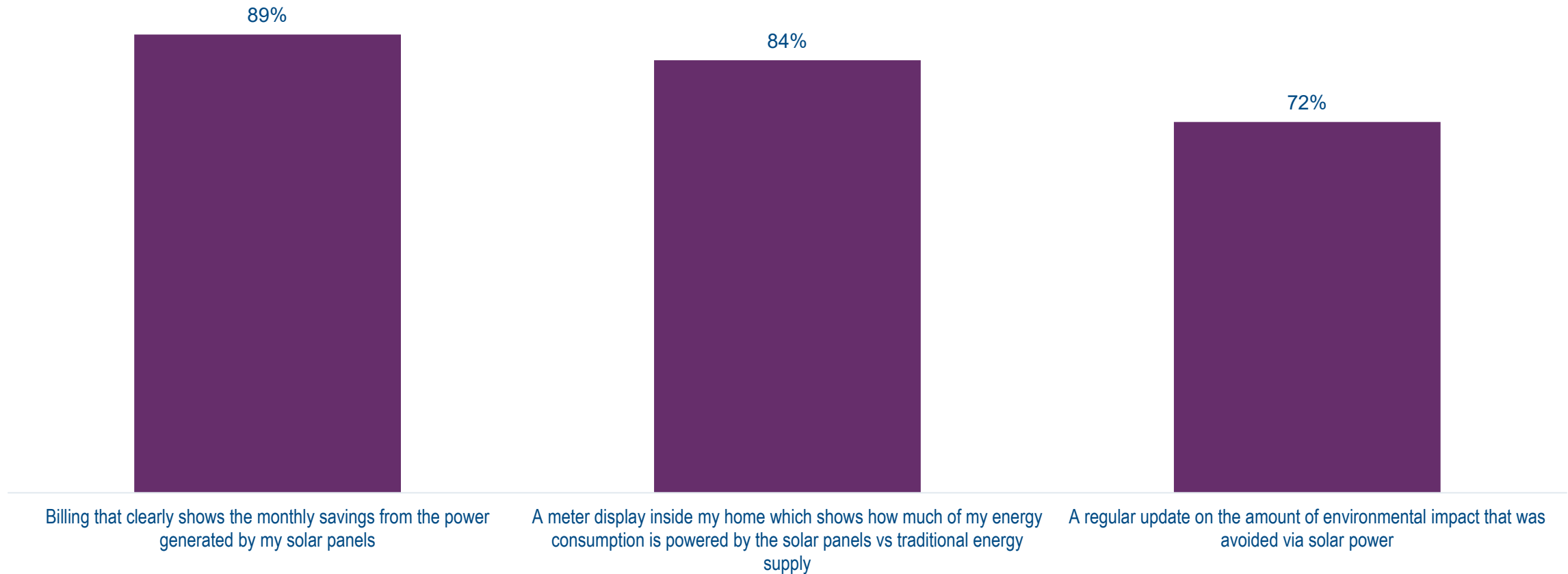
Q14. Based on the program description you just saw, how likely would you be to participate in the program?

Q18. Based on the program description you just saw, how likely would you be to tell other people about this program?

# Importance of Concept Features (Concept R – Renewables)

Billing that highlight monthly savings from solar panels is the most important feature of 'Renewables' concept

## Concept R (Renewables) – T2B Feature Importance



Q19A. The program would include all of the features listed in the description you read. We would like to know how important each feature is to you. Please read each one carefully, and indicate how important it is to you that the program includes this feature.

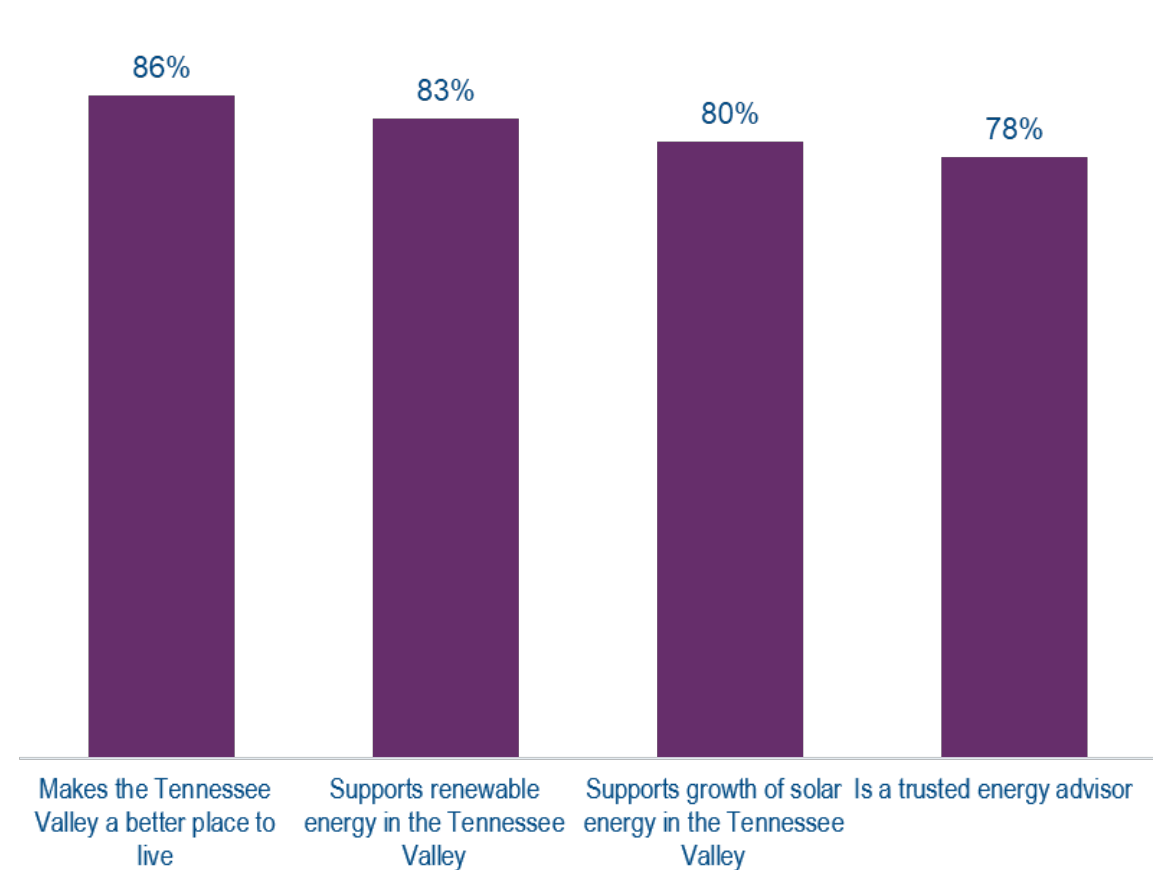
# Affinity towards LPCs/ TVA (Concept R – Renewables)

'Renewables' concept results in similar levels of high affinity for LPCs, but is directionally lower towards most TVA attributes

## LPC – T2B Agreement (Strongly/ Somewhat Agree)



## TVA – T2B Agreement (Strongly/ Somewhat Agree)



Q20. If your local power company made a program like this available, how much would you agree or disagree with the following? My local power company...

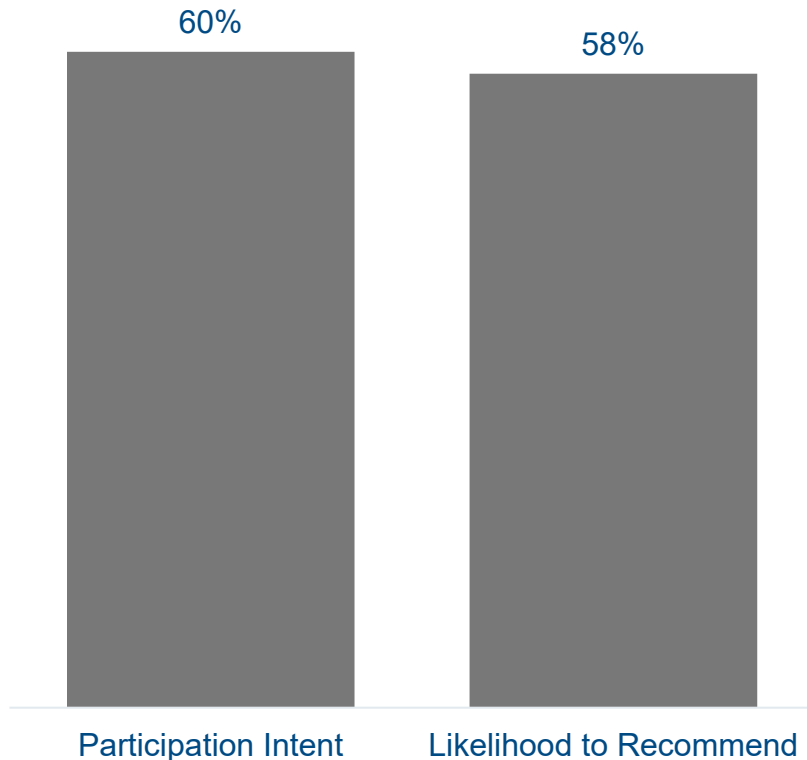
Q21. If the Tennessee Valley Authority (TVA) made a program like this available, how much would you agree or disagree with the following? The TVA...

# Participation & Recommendation Intent; Likes & Dislikes (Concept S – Starting with Solar)

'Starting with Solar' falls into the middle of all concepts tested for both Participation and Recommendation

- Most likes are about having someone to 'help' then with this process

## T2B Participation Intent & T2B Likelihood to Recommend



*[I like] the evaluation to see if I would qualify or benefit from solar panels, and if not, help in finding ways for efficiency of my electricity.*

*[I like] that there would be a knowledgeable advisor to help me understand how this would work.*

*I like that an expert would help decide what was right for our home.*

*[I dislike] the time it would take to review my home to see if it is a good fit.*

Q14. Based on the program description you just saw, how likely would you be to participate in the program?

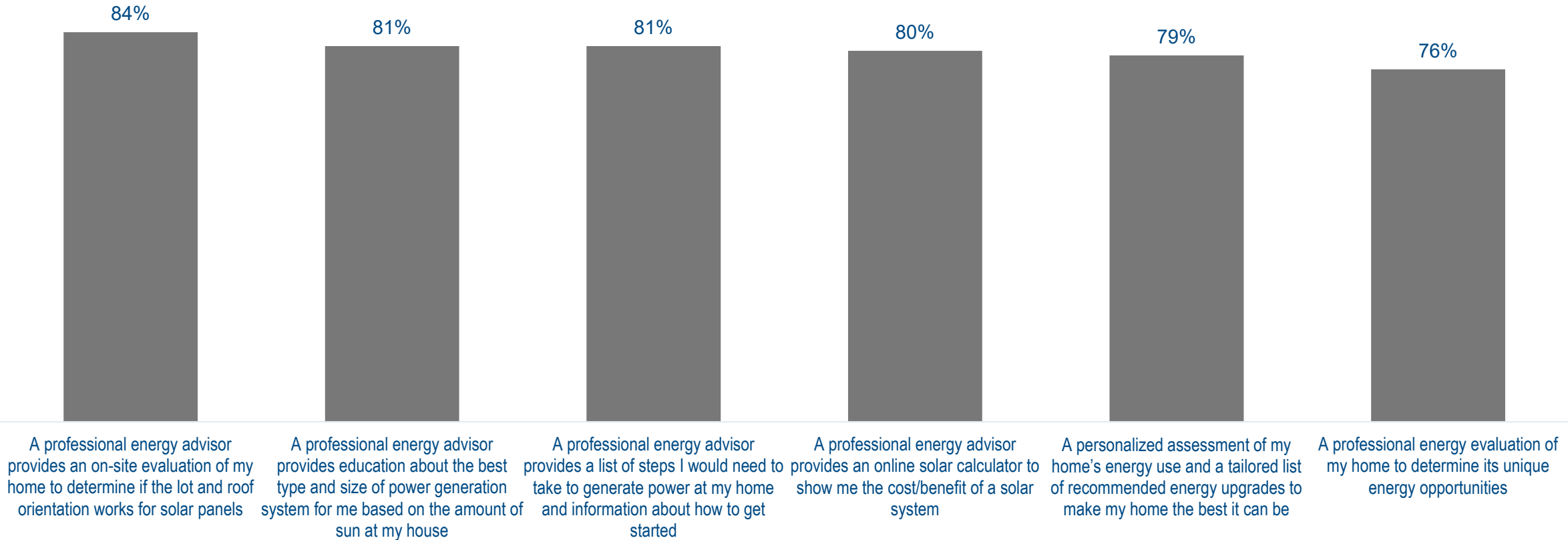
Q18. Based on the program description you just saw, how likely would you be to tell other people about this program?



# Importance of Concept Features (Concept S – Starting with Solar)

Features that help them understand if their home is right for solar, and the best system/ steps to get started rise to the top for 'Starting with Solar'

## Concept S (Starting with Solar) – T2B Feature Importance

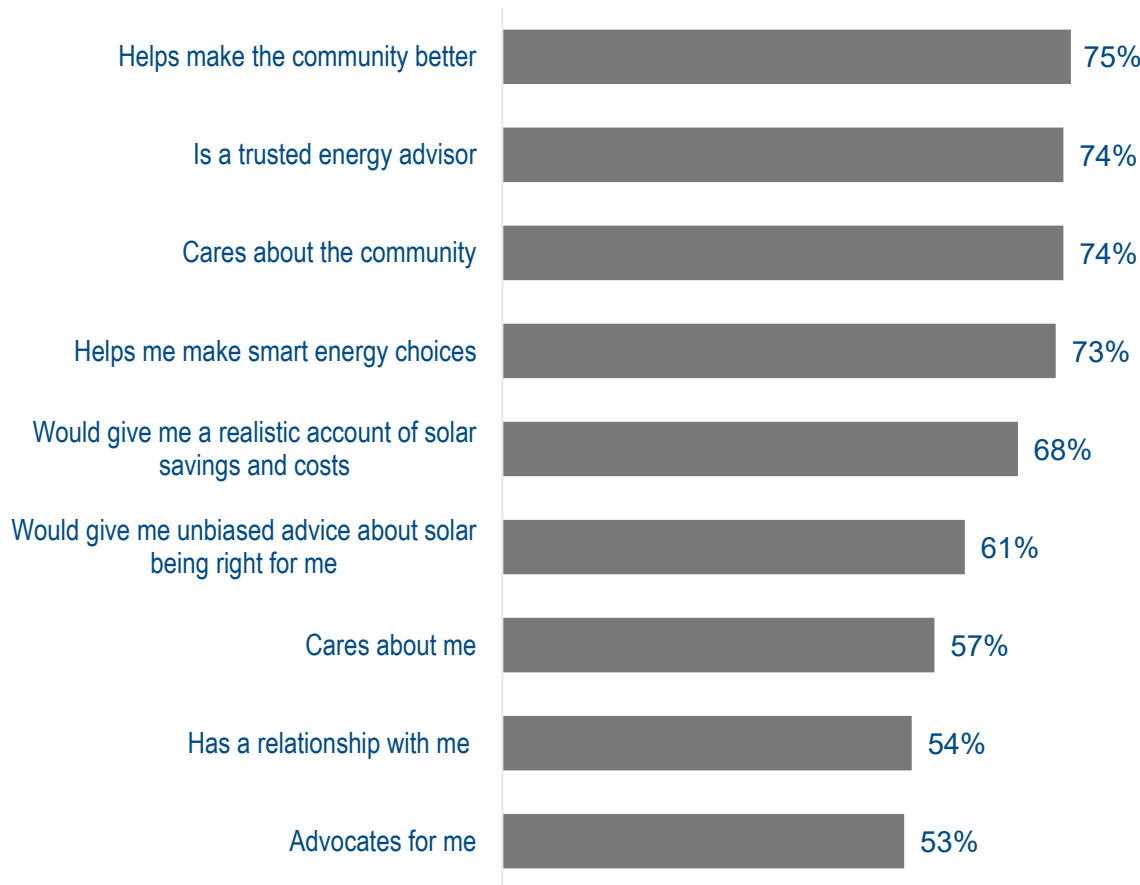


Q19A. The program would include all of the features listed in the description you read. We would like to know how important each feature is to you. Please read each one carefully, and indicate how important it is to you that the program includes this feature.

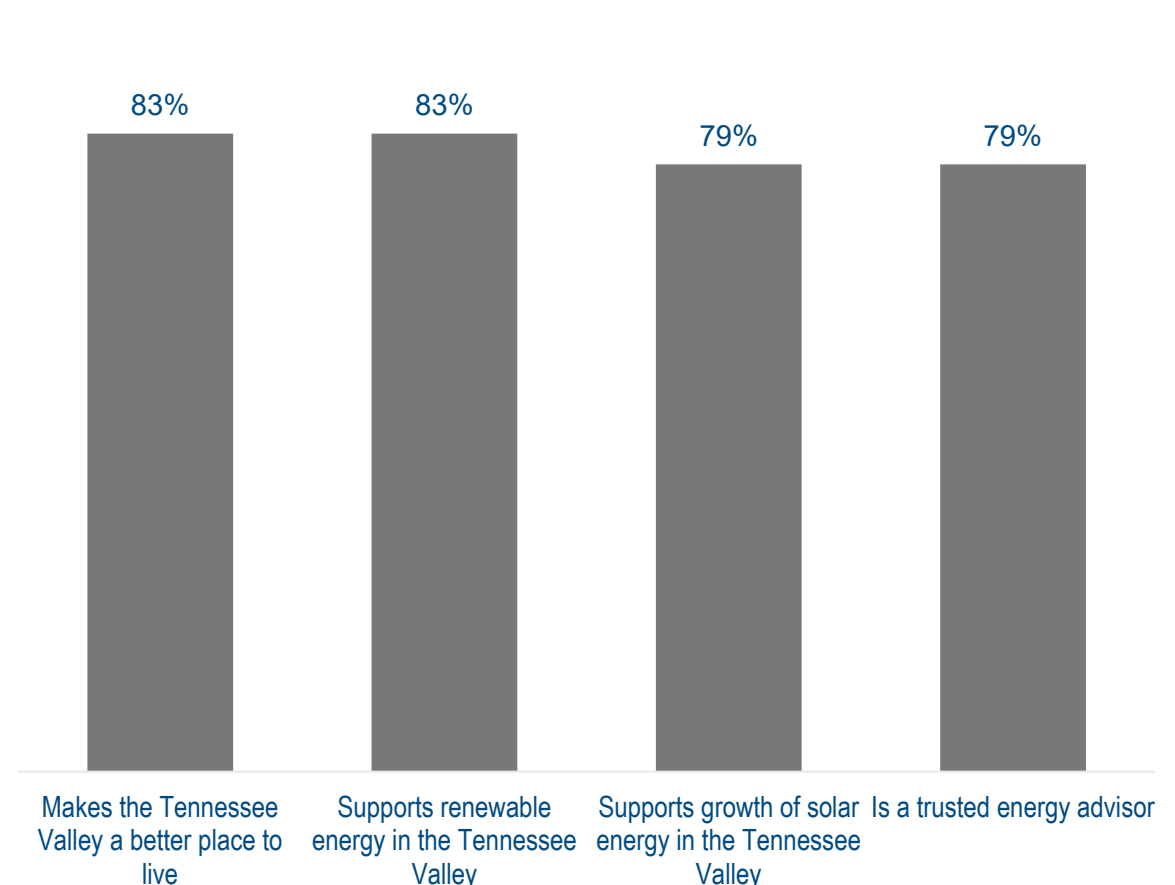
# Affinity towards LPCs/ TVA (Concept S – Starting with Solar)

Affinity towards LPCs and TVA fall into the middle of concepts tested for 'Starting with Solar'

## LPC – T2B Agreement (Strongly/ Somewhat Agree)



## TVA – T2B Agreement (Strongly/ Somewhat Agree)



Q20. If your local power company made a program like this available, how much would you agree or disagree with the following? My local power company...

Q21. If the Tennessee Valley Authority (TVA) made a program like this available, how much would you agree or disagree with the following? The TVA...