

# GREEN ENERGY PERCEPTIONS AND USAGE

Stevens Institute of Technology

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# KEY FINDINGS

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1. While adults **express a desire to consume more green energy**, their **willingness to pay more for it varies** by age, income, and overall attitudes towards green energy.
  - Adults overall say they would be **willing to pay 10% more per month** if it meant more of their consumption came from green energy.
2. For most adults, **price is top of mind** when it comes to purchasing green energy related products – **but it's not the only factor they consider**.
  - When it comes to the factors they consider when purchasing green energy-related products, adults view **price** (86%) as the most important aspect among those tested, although **function/performance** (82%) and **ease of maintenance** (83%) are also important overall.
  - **63% of adults say price is their primary consideration** when purchasing green energy-related products, and that **environmental impact is secondary** to price.
3. When it comes to the future of green energy, adults view larger entities, such as **governments** and **businesses**, as well as **individuals** and **households** as **equally responsible** for adopting its use in everyday life.
4. While majorities of adults believe green energy systems would have a **mostly positive impact** on options such as **reducing air pollution** and **jobs in the green energy industry**, perceptions are slightly mixed when it comes to **green energy's impact on personal well-being** and **energy costs**.

AGENDA

## SEGMENTATIONS

GREEN ENERGY PERCEPTIONS

PERSONAL USAGE – GENERAL PERCEPTIONS

PERSONAL USAGE – INCENTIVES + BARRIERS

THE FUTURE OF GREEN ENERGY



## SEGMENTATIONS

### What are the core perceptions of green energy?

Green Energy Evangelists	Green Energy Promoters	Green Energy Passives	Green Energy Detractors
WHO THEY ARE			
<ul style="list-style-type: none"> <li>• Skew male</li> <li>• Skew younger</li> <li>• Most likely to live in an urban community</li> <li>• Most likely to have a post-grad degree, lean more educated in general</li> </ul>	<ul style="list-style-type: none"> <li>• Skew female</li> <li>• Slightly more likely to be college educated</li> <li>• Skew towards urban or suburban communities</li> </ul>	<ul style="list-style-type: none"> <li>• Skew female</li> <li>• Skew slightly older</li> <li>• Tend to live in suburban or rural communities</li> <li>• Skew less educated</li> </ul>	<ul style="list-style-type: none"> <li>• Skew male</li> <li>• Most likely to be older</li> <li>• Most likely to live in rural communities</li> <li>• Least likely to be educated</li> </ul>
WHAT THEIR VIEWS ON GREEN ENERGY ARE			
<p><b>Evangelists are most hopeful about green energy's future.</b> They are also most likely to express optimism, excitement, and eagerness.</p>	<p><b>Promoters express hope and optimism about green energy's future,</b> but to a lesser extent than evangelists. They're less likely than evangelists to express excitement and eagerness as well.</p>	<p>Passives are <b>equally likely to be concerned as they are hopeful</b> about green energy's future. Additionally, they're more likely than promoters and evangelists to be pessimistic.</p>	<p>Detractors are <b>most likely to be concerned and pessimistic</b> about green energy's future. Virtually none are excited or eager, although a small percentage are hopeful.</p>
HOW THEY'RE DEFINED			
<p>Adults who are <b>very likely</b> to seek out green energy technologies for personal use in their everyday life if these systems were available to them.</p>	<p>Adults who are <b>somewhat likely</b> to seek out green energy technologies for personal use in their everyday life if these systems were available to them.</p>	<p>Adults who are <b>neither likely nor unlikely, or somewhat unlikely</b> to seek out green energy technologies for personal use in their everyday life if these systems were available to them.</p>	<p>Adults who are <b>very unlikely</b> to seek out green energy technologies for personal use in their everyday life if these systems were available to them.</p>

## SEGMENTATIONS

Majorities of green energy promoters agree with each tested statement, except that they would be willing to pay more for green energy (42%).

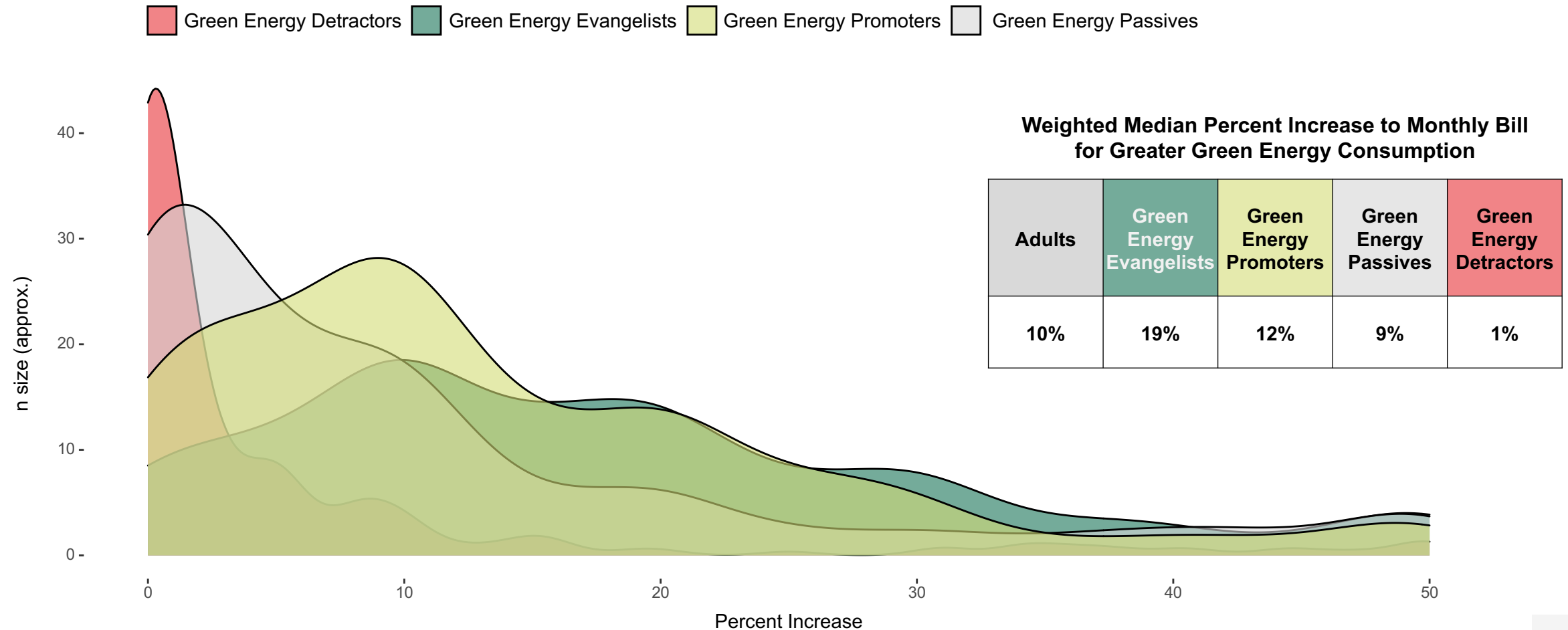
Please indicate whether you agree or disagree with each of the following statements.

Total Agree	Adults	Green Energy Evangelists	Green Energy Promoters	Green Energy Passives	Green Energy Detractors
I want to know more about the benefits of green energy	62%	91%	76%	45%	21%
Companies and businesses should proactively adopt green energy in their spaces and facilities	61%	91%	76%	41%	19%
I understand the value of green energy	61%	91%	78%	43%	23%
Higher education should prepare students to pursue careers in the green energy sector	58%	89%	71%	42%	17%
The long-term benefits of green energy outweigh the cost	52%	85%	65%	30%	14%
I plan to use more green energy technologies in the future	52%	87%	72%	27%	5%
I recommend others to adopt green energy	48%	86%	60%	24%	11%
I intend to use green energy more than other sources of energy in the future	46%	84%	57%	23%	8%
I am willing to pay more for green energy	36%	70%	42%	17%	4%

## SEGMENTATIONS

Adults overall are receptive to a 10% increase in their energy bill if it meant consuming more green energy, although percentage increases vary by attitudes towards green energy.

Thinking about your monthly energy bill, what percentage increase to your bill, if any, would you be willing to pay if it meant more of your consumption came from green energy? Please enter a value from 0 to 100.



AGENDA

SEGMENTATIONS

GREEN ENERGY PERCEPTIONS

PERSONAL USAGE – GENERAL PERCEPTIONS

PERSONAL USAGE – INCENTIVES + BARRIERS

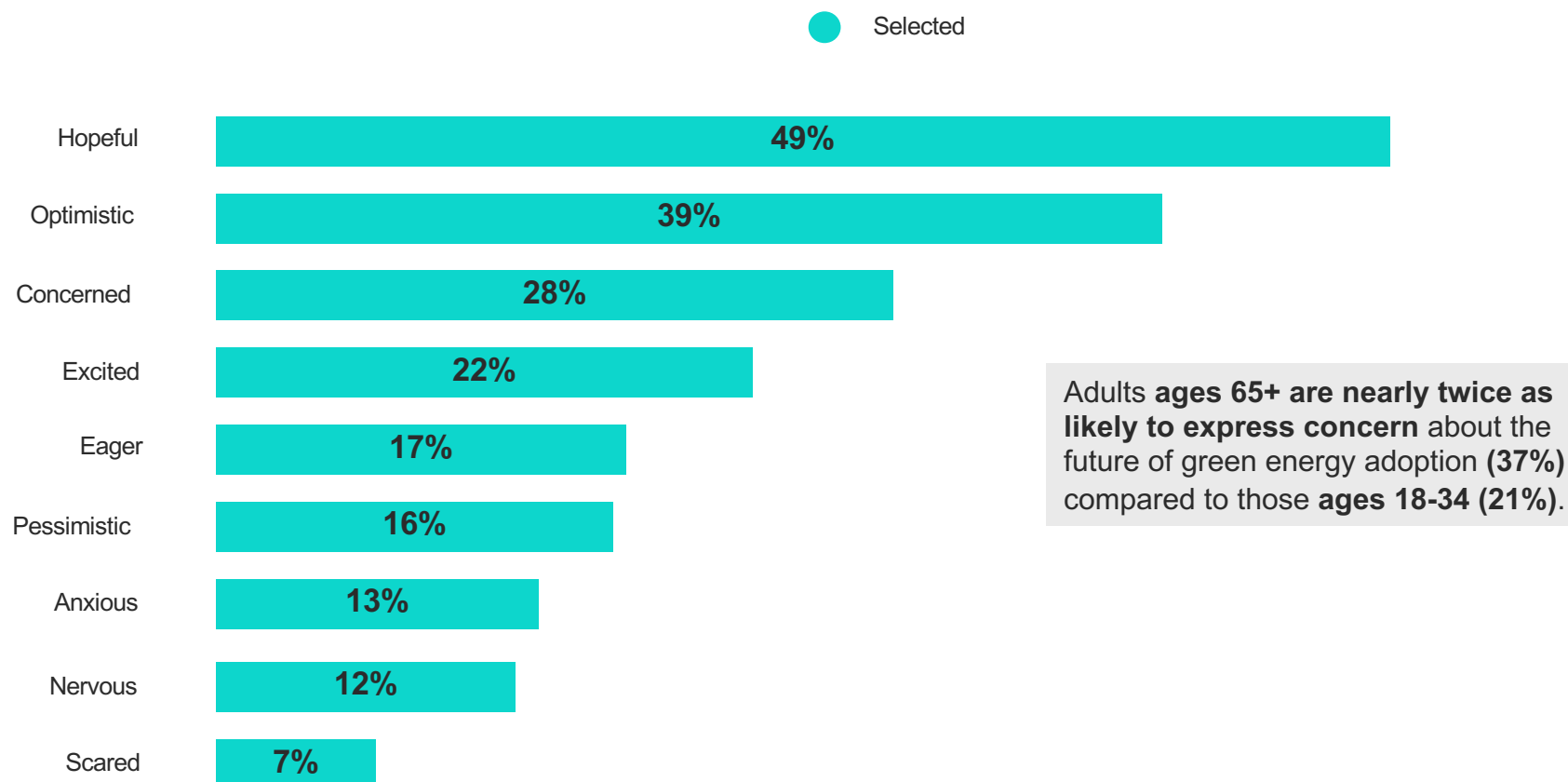
THE FUTURE OF GREEN ENERGY



## GREEN ENERGY PERCEPTIONS

Half of adults (49%) say they're hopeful about the future of green energy adoption in the U.S.. while slightly more than one quarter (28%) say they're concerned.

Which of the following words or phrases best describes your feelings about the future of green energy technology adoption in the United States? Please select all that apply.





## GREEN ENERGY PERCEPTIONS

Adults tend to associate each tested term with well-known technologies like solar and wind energy, as well as overarching themes of sustainability, although subtle differences emerge for each term.

What words or phrases come to mind when thinking of the term \_\_\_\_\_?

### Clean Energy

#### Lack of pollution:

- “Does not cause pollution”
- “No pollution, no smoke or gasses”

#### Specific sources:

- “Solar and wind”
- “Solar, wind and water”

#### Electrification:

- “Electric cars”
- “Plug in cars”

#### Carbon footprint:

- “Reduced carbon footprint”
- “Reduction of carbon footprint”

### Green Energy Technology

#### Environmental impact:

- “I think of energy that has no carbon emissions”
- “Renewable and sustainable energy sources”

#### “Saving” the planet:

- “Saving our earth for the future”
- “Taking care of the planet”

#### Specific sources:

- “Wind turbines, solar energy”
- “Solar, wind, hydroelectric, and geothermal”

#### Electrification:

- “Electric power”
- “Electric vehicles”

### Renewable Energy

#### Sustainability:

- “Sustainable, natural”
- “Sustainability, climate change”

#### Specific sources:

- “I think of wind mills and solar panels”
- “Solar, wind, hydro”

#### Recycling/reuse:

- “Energy we can reuse”
- “Energy that can be recycled and reused, it does not run out”

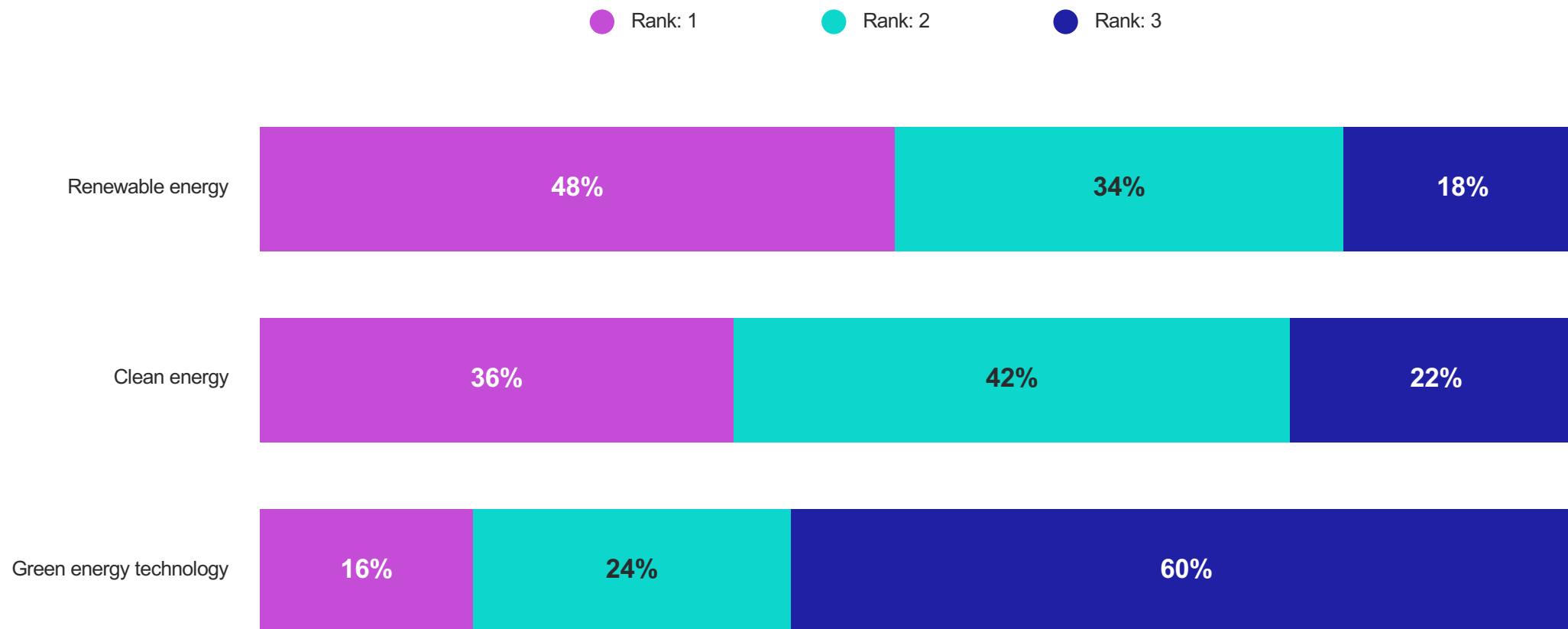
#### Lack of pollution:

- “Clean”
- “Reusable, clean”

## GREEN ENERGY PERCEPTIONS

Of the tested options, adults are most likely to rank “renewable energy” (48%) as the term they’re most familiar with.

Thinking about energy systems which are designed to produce energy from a renewable source or change end-use energy consumption in a way that reduces the associated environmental impact, which of the following terms are you most familiar with? Please rank from most to least familiar, with 1 being most familiar and 3 being least familiar.

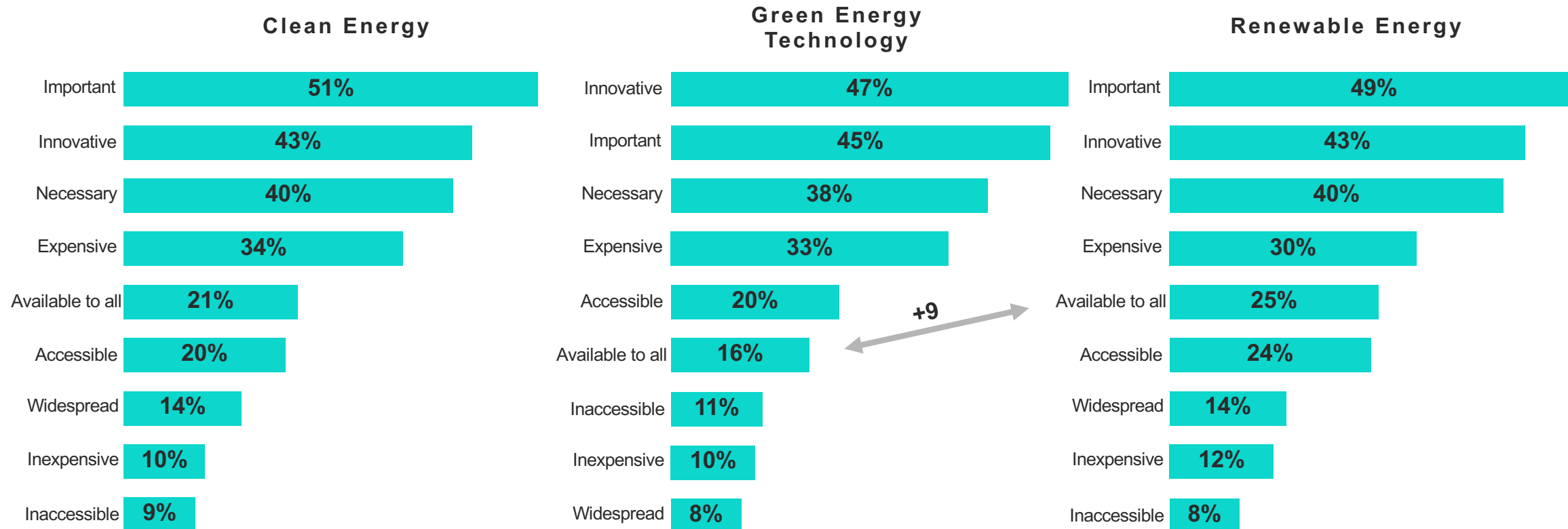


## GREEN ENERGY PERCEPTIONS

Adults are +9 percentage points more likely to view renewable energy as “available to all” (25%) compared to green energy technology (16%).

Which of the following words or phrases do you most closely associate with the term \_\_\_\_\_? \* Please select all that apply.

 Selected



\* Sample sizes for each split sampled term range from 702 - 756

## GREEN ENERGY PERCEPTIONS

Agreement about ideas such as the benefits outweighing the costs of green energy use, plans to use green energy in the future, and willingness to pay more for green energy tends to decrease with age.

Please indicate whether you agree or disagree with each of the following statements.

% Agree	Adults	Gender: Male	Gender: Female	Age: 18-34	Age: 35-44	Age: 45-64	Age: 65+	Income: Under 50k	Income: 50k-100k	Income: 100k+
I want to know more about the benefits of green energy	62%	64%	60%	63%	67%	60%	57%	59%	62%	72%
Companies and businesses should proactively adopt green energy in their spaces and facilities	61%	63%	58%	64%	64%	57%	59%	56%	63%	71%
I understand the value of green energy	61%	67%	56%	63%	70%	62%	54%	57%	64%	74%
Higher education should prepare students to pursue careers in the green energy sector	58%	64%	54%	60%	60%	58%	56%	55%	60%	69%
The long-term benefits of green energy outweigh the cost	52%	54%	49%	58%	61%	48%	42%	48%	53%	62%
I plan to use more green energy technologies in the future	52%	57%	49%	58%	63%	51%	40%	47%	56%	63%
I recommend others to adopt green energy	48%	52%	46%	57%	59%	45%	36%	46%	49%	56%
I intend to use green energy more than other sources of energy in the future	46%	51%	43%	54%	56%	43%	35%	43%	49%	55%
I am willing to pay more for green energy	36%	40%	33%	42%	44%	33%	27%	32%	33%	51%

AGENDA

SEGMENTATIONS

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PERSONAL USAGE – GENERAL PERCEPTIONS

PERSONAL USAGE – INCENTIVES + BARRIERS

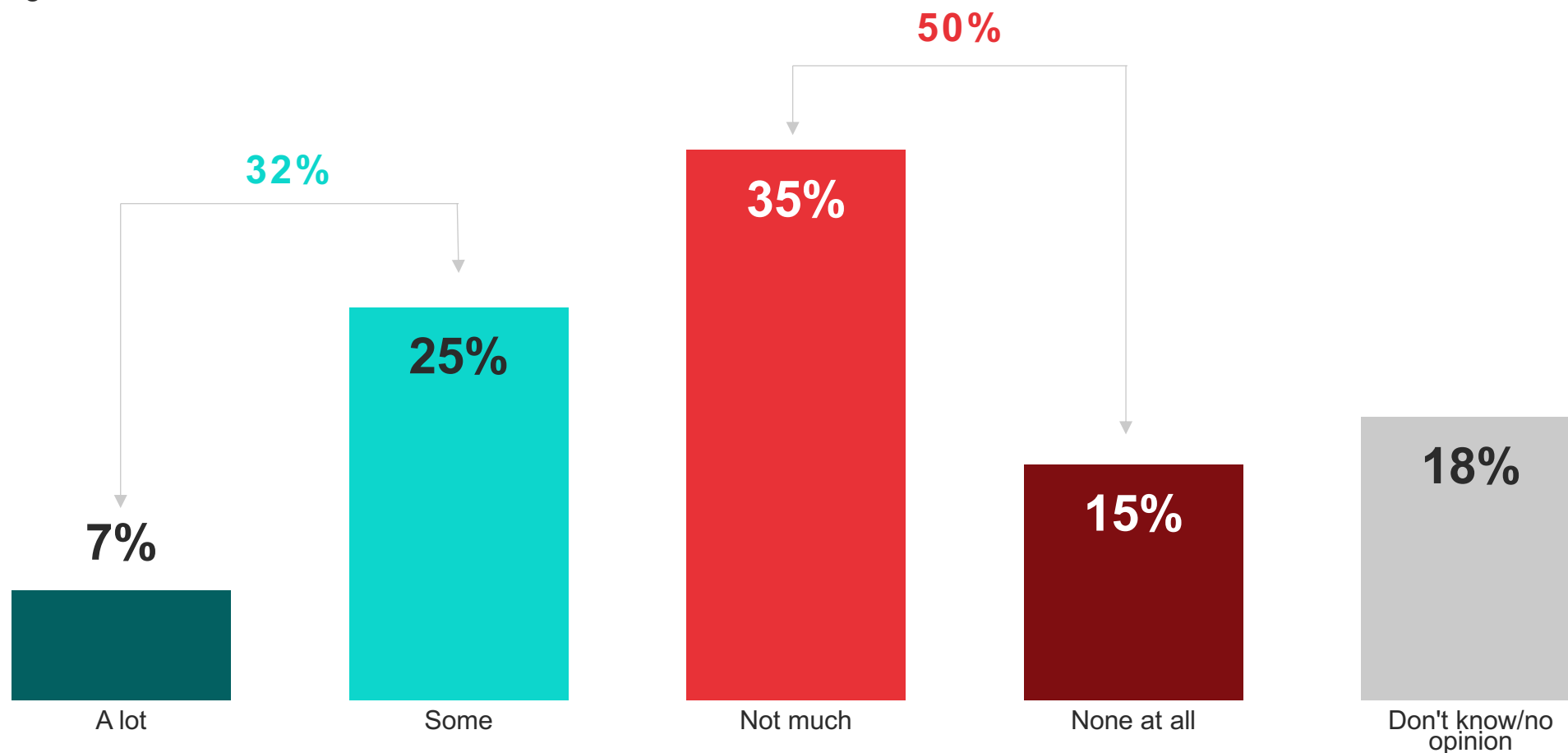
THE FUTURE OF GREEN ENERGY



## PERSONAL USAGE – GENERAL PERCEPTIONS

Half of adults (50%) say *not much* or *none* of their personal energy consumption comes from green energy technologies.

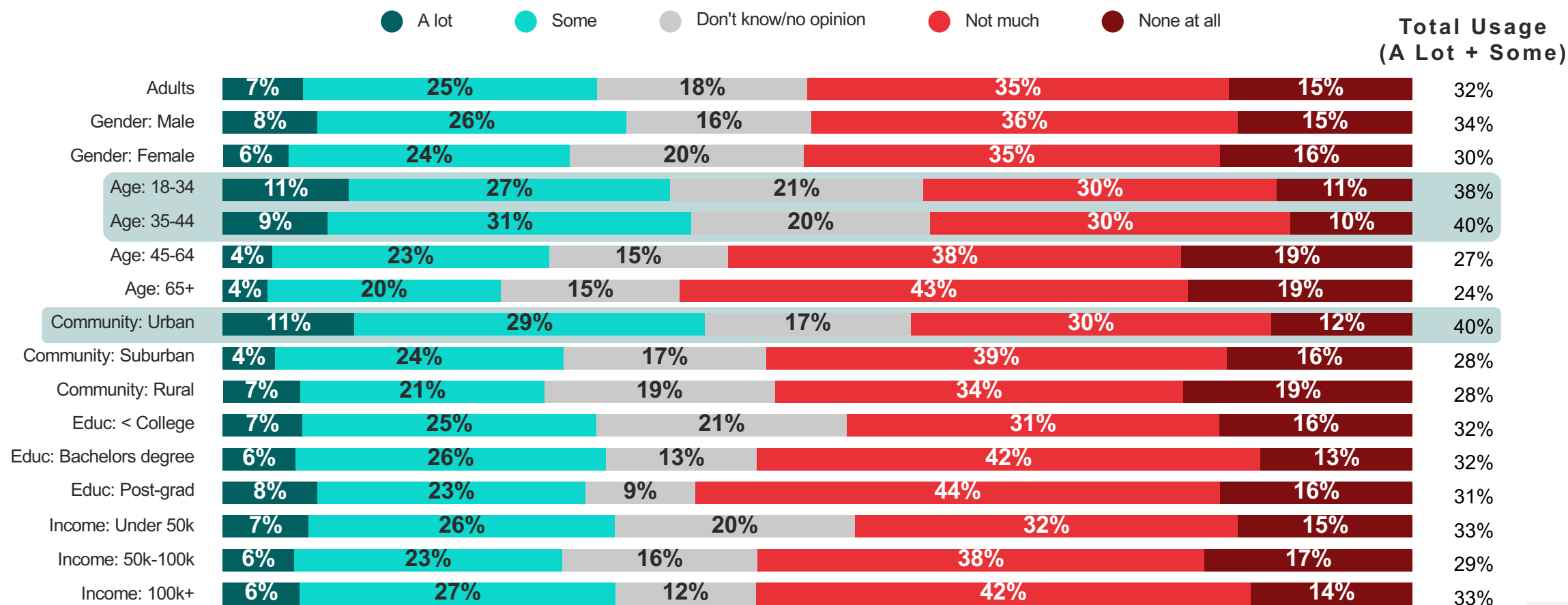
Thinking about your personal energy consumption, including actions such as transportation, appliances you use in your home, and the energy used to power your home, how much of your current energy consumption would you say comes from green energy technologies?



## PERSONAL USAGE – GENERAL PERCEPTIONS

Around two-in-five adults ages 18-34 (38%) and 35-44 (40%), as well as urban adults (40%) say *a lot* or *some* of their personal energy consumption comes from green energy technologies.

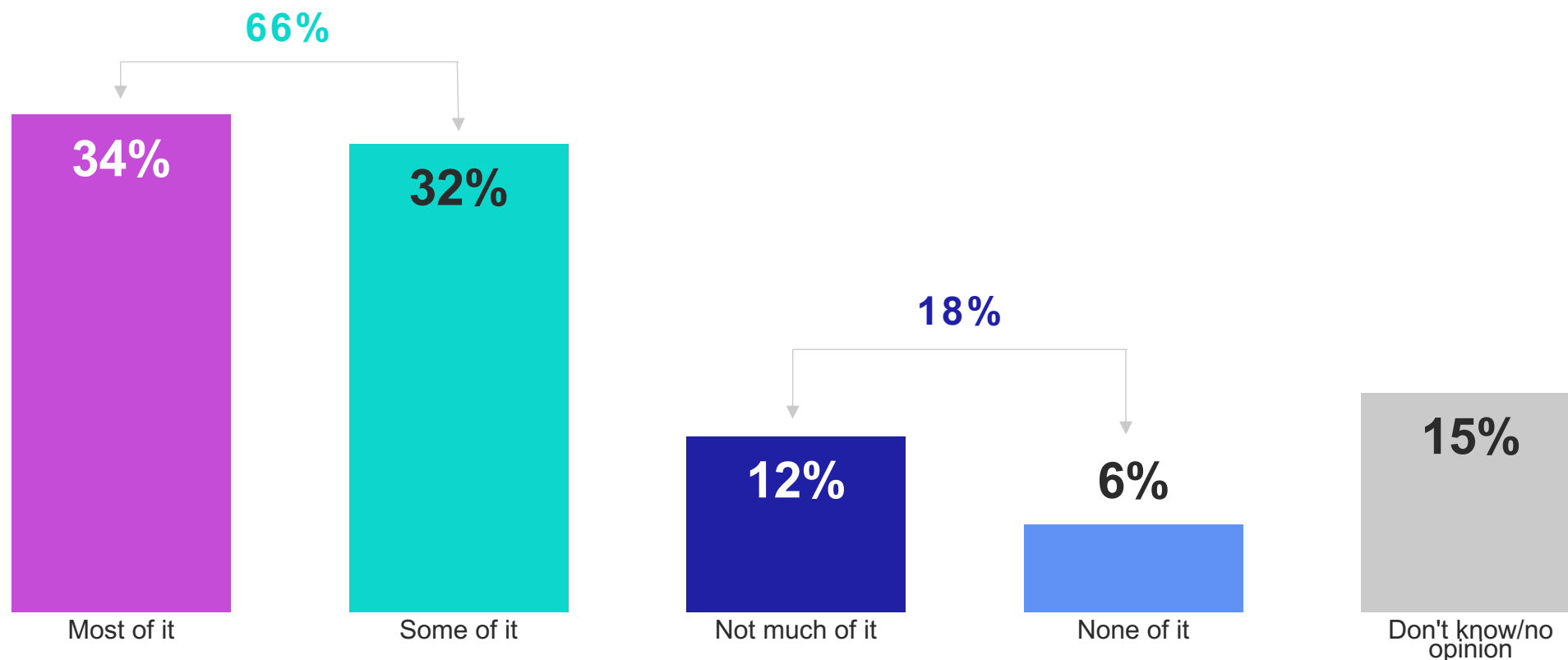
Thinking about your personal energy consumption, including actions such as transportation, appliances you use in your home, and the energy used to power your home, how much of your current energy consumption would you say comes from green energy technologies?



## PERSONAL USAGE – GENERAL PERCEPTIONS

Despite relatively low levels of current adoption, two-thirds of adults (66%) say they would prefer if *some* or *most* of their energy consumption came from green energy technologies.

Thinking about your personal energy consumption, including actions such as transportation, appliances you use in your home, and the energy used to power your home, how much of your personal energy consumption, if any, would you prefer came from green energy technologies?

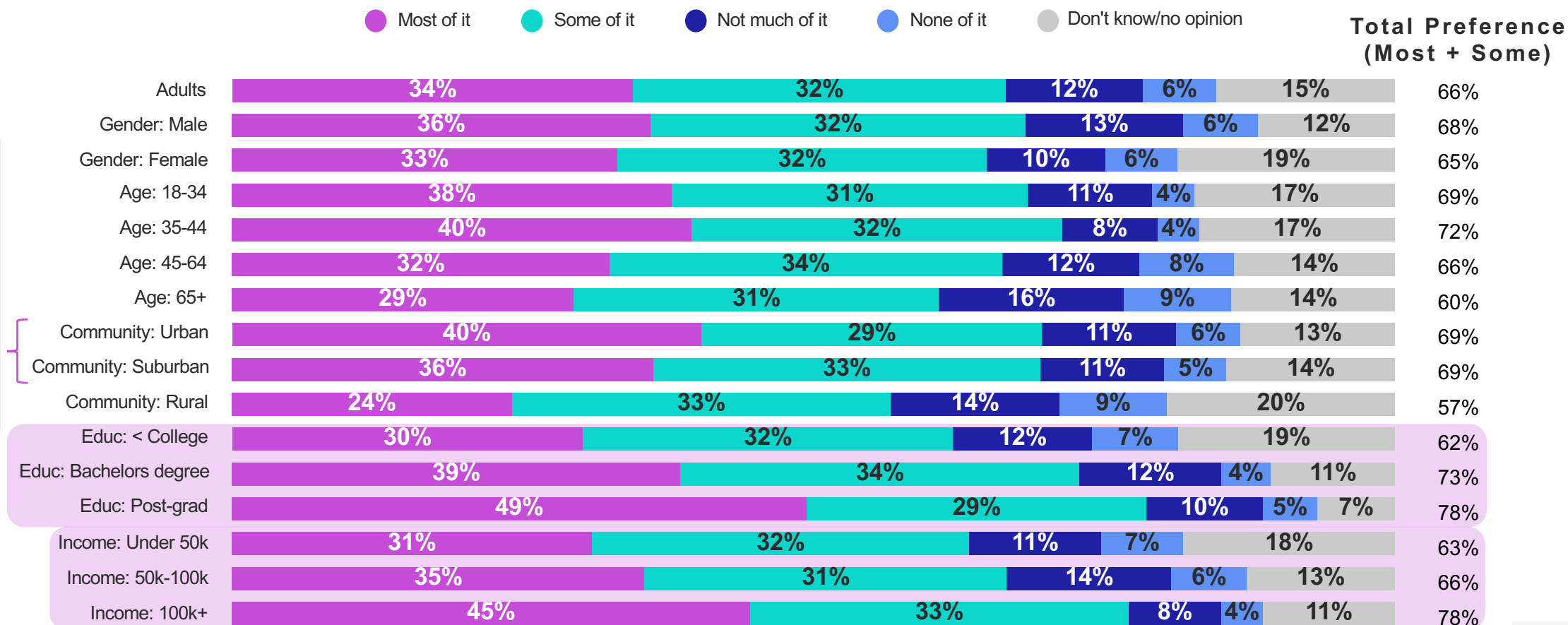




## PERSONAL USAGE – GENERAL PERCEPTIONS

# Preference for greater green energy consumption increases with education and income levels.

Thinking about your personal energy consumption, including actions such as transportation, appliances you use in your home, and the energy used to power your home, how much of your personal energy consumption, if any, would you prefer came from green energy technologies?

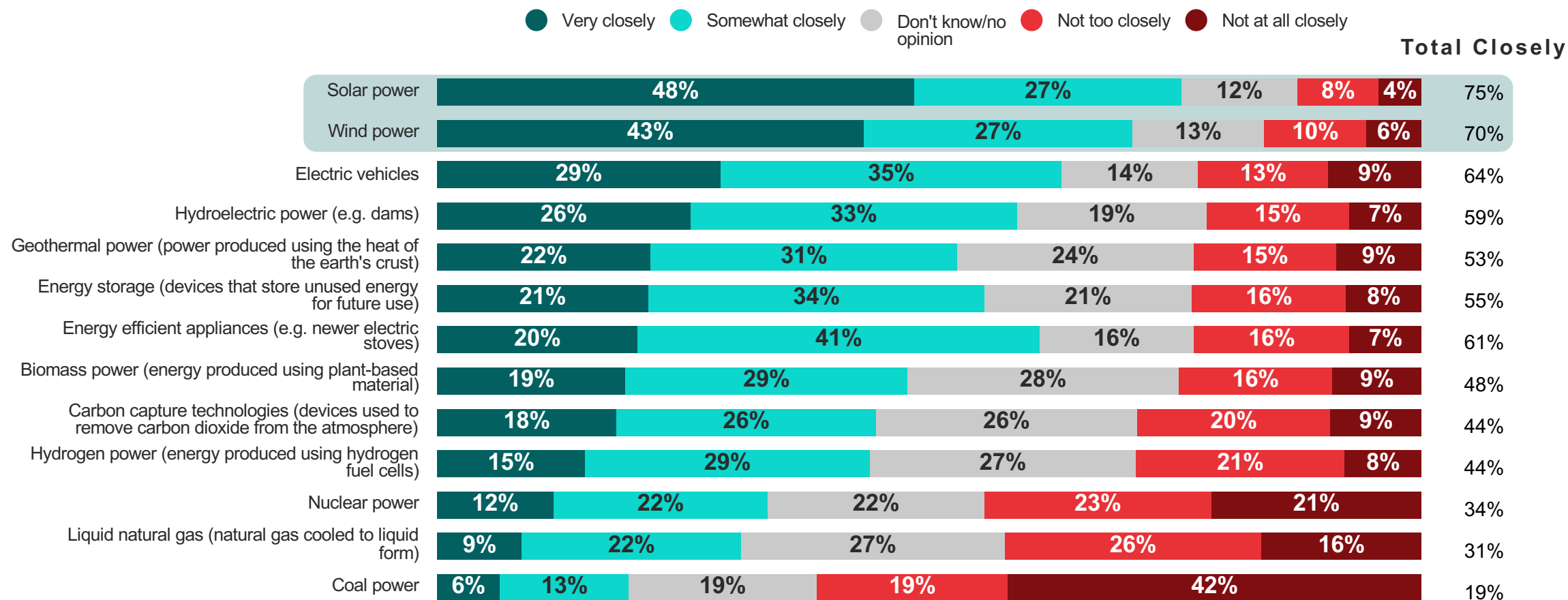


**Urban (69%) and suburban (69%) adults are equally likely overall to display preferences for green energy as part of their personal energy consumption.**

## PERSONAL USAGE – GENERAL PERCEPTIONS

Of the tested options, adults are most likely to associate green energy technologies with solar power (75%) and wind power (70%).

How closely do you associate each of the following products with the term 'green energy technologies?'



AGENDA

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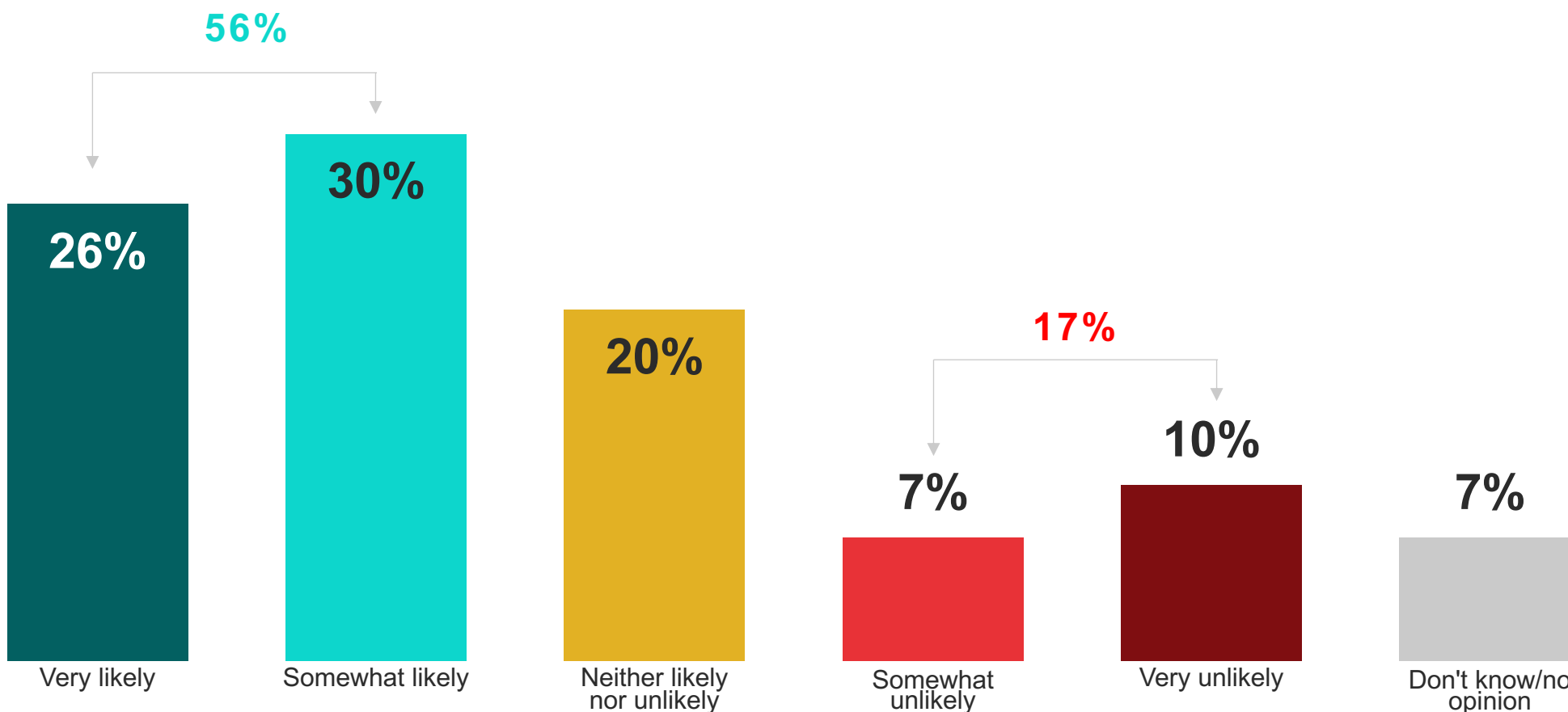
THE FUTURE OF GREEN ENERGY



## PERSONAL USAGE – INCENTIVES + BARRIERS

A majority of adults (56%) would be likely to seek out green energy technologies for use in everyday life if they were made available.

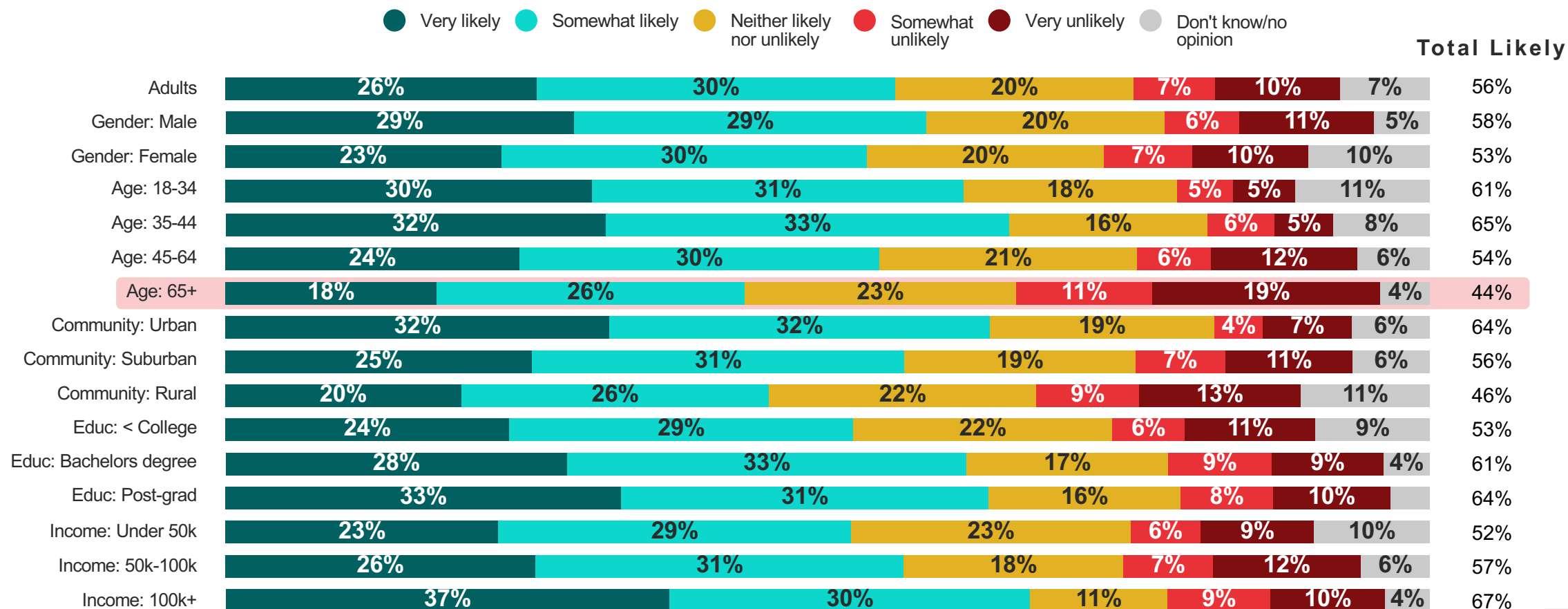
How likely would you be, if at all, to seek out green energy technologies (e.g. solar panels) for personal use in your everyday life if these systems were available to you?



## PERSONAL USAGE – INCENTIVES + BARRIERS

Compared to other age groups, adults 65+ (44%) are less likely to seek out green energy technologies in their everyday life compared to other age groups.

How likely would you be, if at all, to seek out green energy technologies (e.g. solar panels) for personal use in your everyday life if these systems were available to you?



## PERSONAL USAGE – INCENTIVES + BARRIERS

Those likely to seek out green energy cite its positive environmental impact and their personal responsibility to do so, while those not likely to seek it out are prohibited by cost, lack of knowledge about green energy, and their living arrangements.

In a short sentence, what is your primary reason for your interest in **seeking out** products using green energy?\*

### ENVIRONMENTAL IMPACT

“It’s better for the environment.”

### CARBON FOOTPRINT

“In order to reduce my carbon footprint.”

### COST

“Cost savings on electricity.”

### PERSONAL RESPONSIBILITY

“I care about the planet and want to leave a good place for my grandchildren.”

In a short sentence, what is your primary reason for **not seeking out** products using green energy?\*

### INITIAL INVESTMENT

“The initial cost of investment.”

### OVERALL COSTS

“The cost is still prohibitive and doesn’t outweigh the benefit as a consumer.”

### LACK OF KNOWLEDGE

“I don’t know enough about them.”

### LIVING SITUATION

“I live in an apartment and don’t have much choice.”

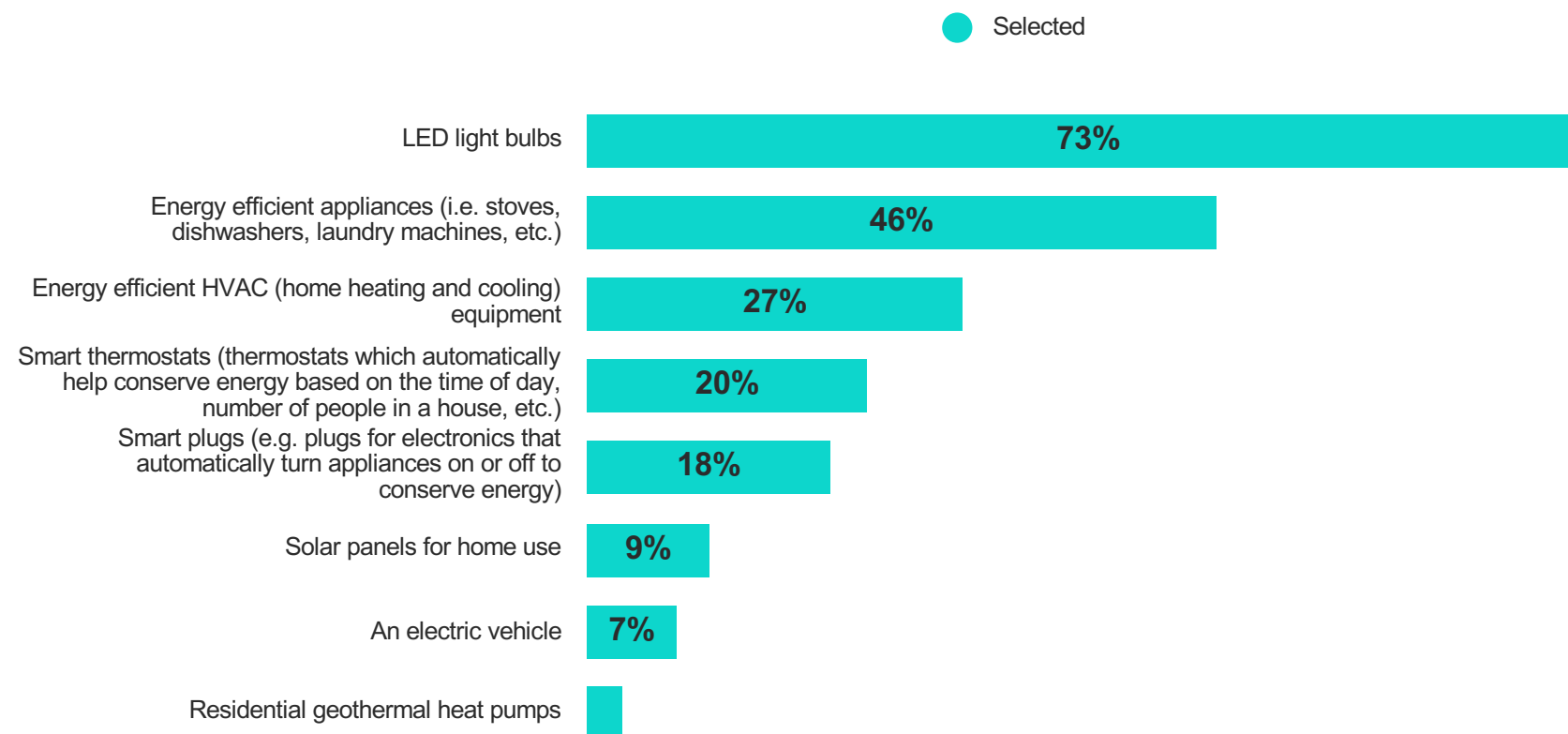
\*Question asked among adults likely to seek out green energy technologies for personal use in everyday life : n-size = 1,248

\*Question asked among adults not likely to seek out green energy technologies for personal use in everyday life : n-size = 581

## PERSONAL USAGE – INCENTIVES + BARRIERS

Of the tested products, adults are most likely to currently use LED light bulbs (73%) and energy efficient appliances (46%).

Do you currently own/use any of the following products focused on environmental sustainability? Please select all that apply.



## PERSONAL USAGE – INCENTIVES + BARRIERS

While older adults are more likely to use products such as energy efficient appliances or energy efficient HVAC systems, younger adults are more likely to use smart plugs, EVs and solar panels in their homes.

Do you currently own/use any of the following products focused on environmental sustainability? Please select all that apply.

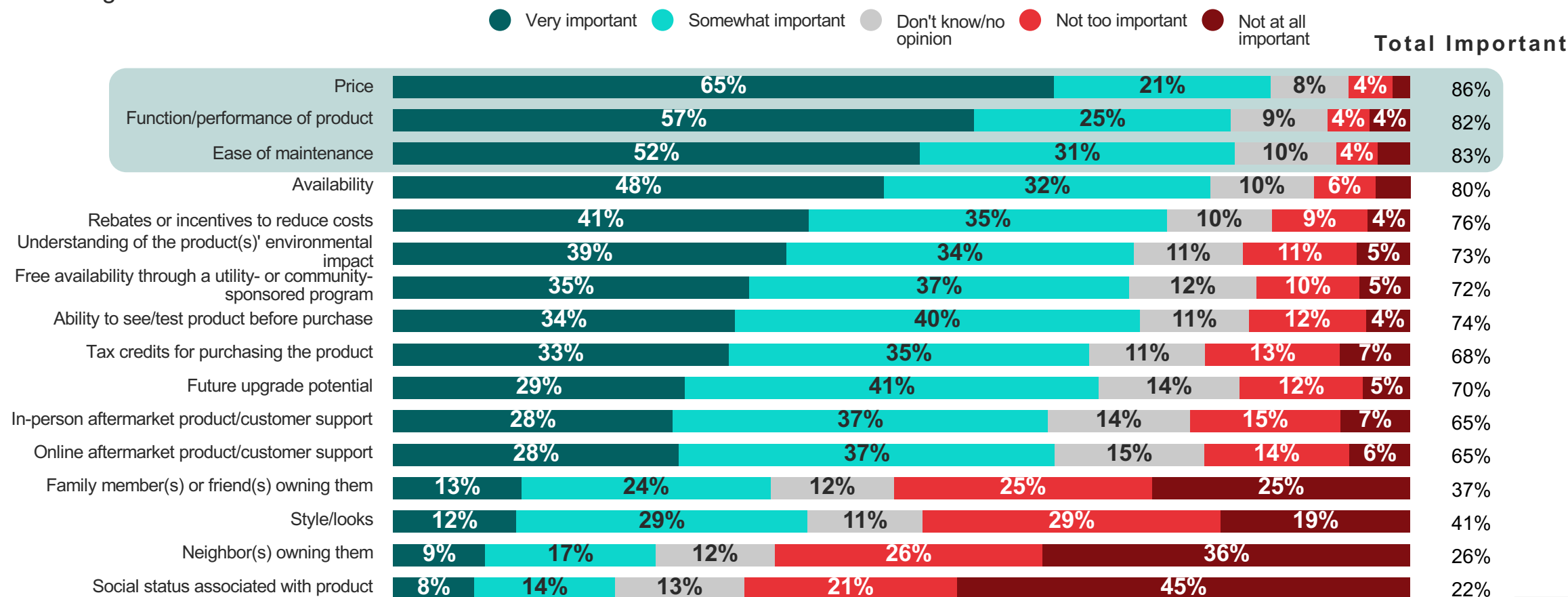
% Selected	Adults	Gender: Male	Gender: Female	Age: 18-34	Age: 35-44	Age: 45-64	Age: 65+	Income: Under 50k	Income: 50k-100k	Income: 100k+
LED light bulbs	73%	74%	73%	62%	75%	77%	82%	67%	79%	83%
Energy efficient appliances (i.e. stoves, dishwashers, laundry machines, etc.)	46%	47%	45%	35%	48%	49%	54%	37%	51%	65%
Energy efficient HVAC (home heating and cooling) equipment	27%	28%	27%	19%	31%	30%	32%	20%	33%	39%
Smart thermostats (thermostats which automatically help conserve energy based on the time of day, number of people in a house, etc.)	20%	22%	19%	21%	23%	20%	19%	13%	25%	37%
Smart plugs (e.g. plugs for electronics that automatically turn appliances on or off to conserve energy)	18%	19%	16%	23%	22%	14%	14%	15%	20%	22%
Solar panels for home use	9%	10%	8%	13%	9%	5%	8%	8%	9%	12%
An electric vehicle	7%	8%	5%	10%	8%	5%	4%	7%	5%	8%
Residential geothermal heat pumps	3%	3%	2%	3%	5%	1%	2%	2%	3%	4%



## PERSONAL USAGE – INCENTIVES + BARRIERS

While adults view price (86%) as the most important aspect among those tested, function/performance (82%) and ease of maintenance (83%) are also important overall when deciding whether to purchase green energy products.

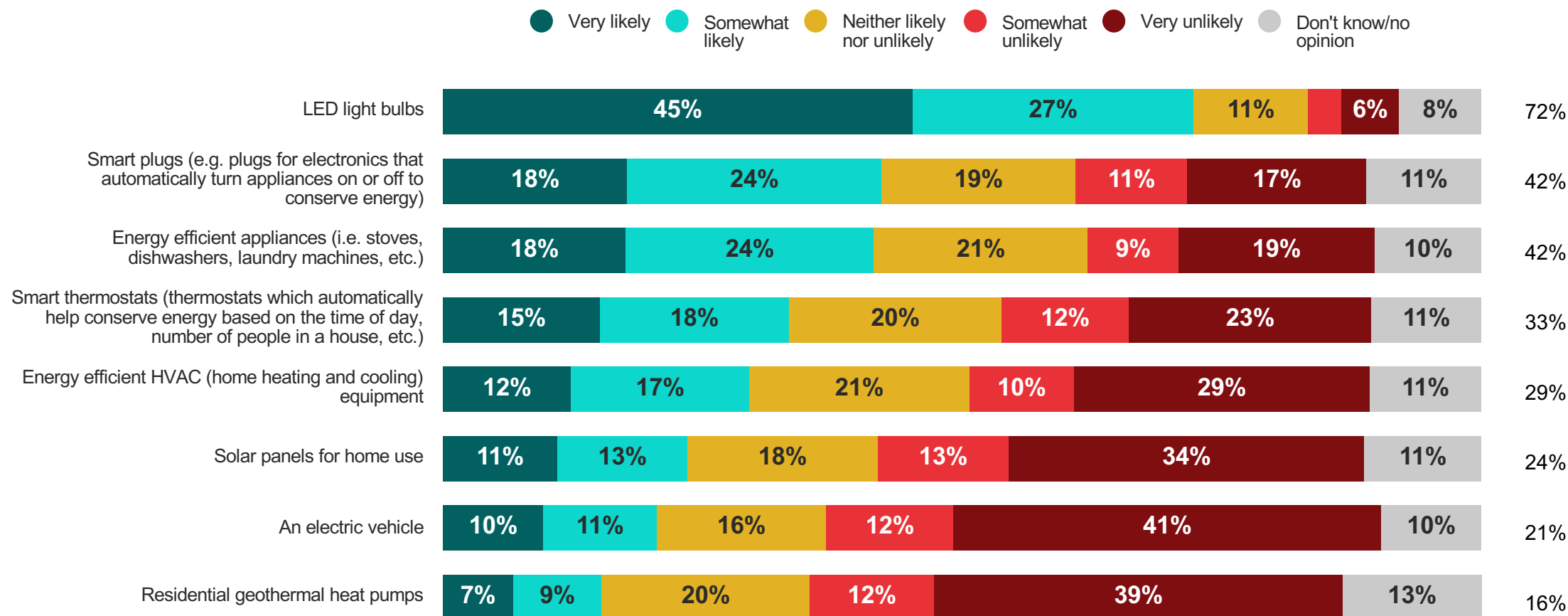
How important, if at all, is each of the following when deciding whether to purchase or use products related to green energy technologies?



## PERSONAL USAGE – INCENTIVES + BARRIERS

Of the tested options, adults are most likely to purchase LED light bulbs (72%) in the next 6-12 months, followed by smart plugs (42%) or energy efficient appliances (42%).

Thinking about the next 6-12 months, how likely are you, if at all, to purchase any of the following products related to green energy technology?



## PERSONAL USAGE – INCENTIVES + BARRIERS

While price is a salient issue across segmentations when it comes to purchasing likelihood, product performance and greater availability also factor into purchasing likelihood for majorities of green energy evangelists, promoters, and even passives.

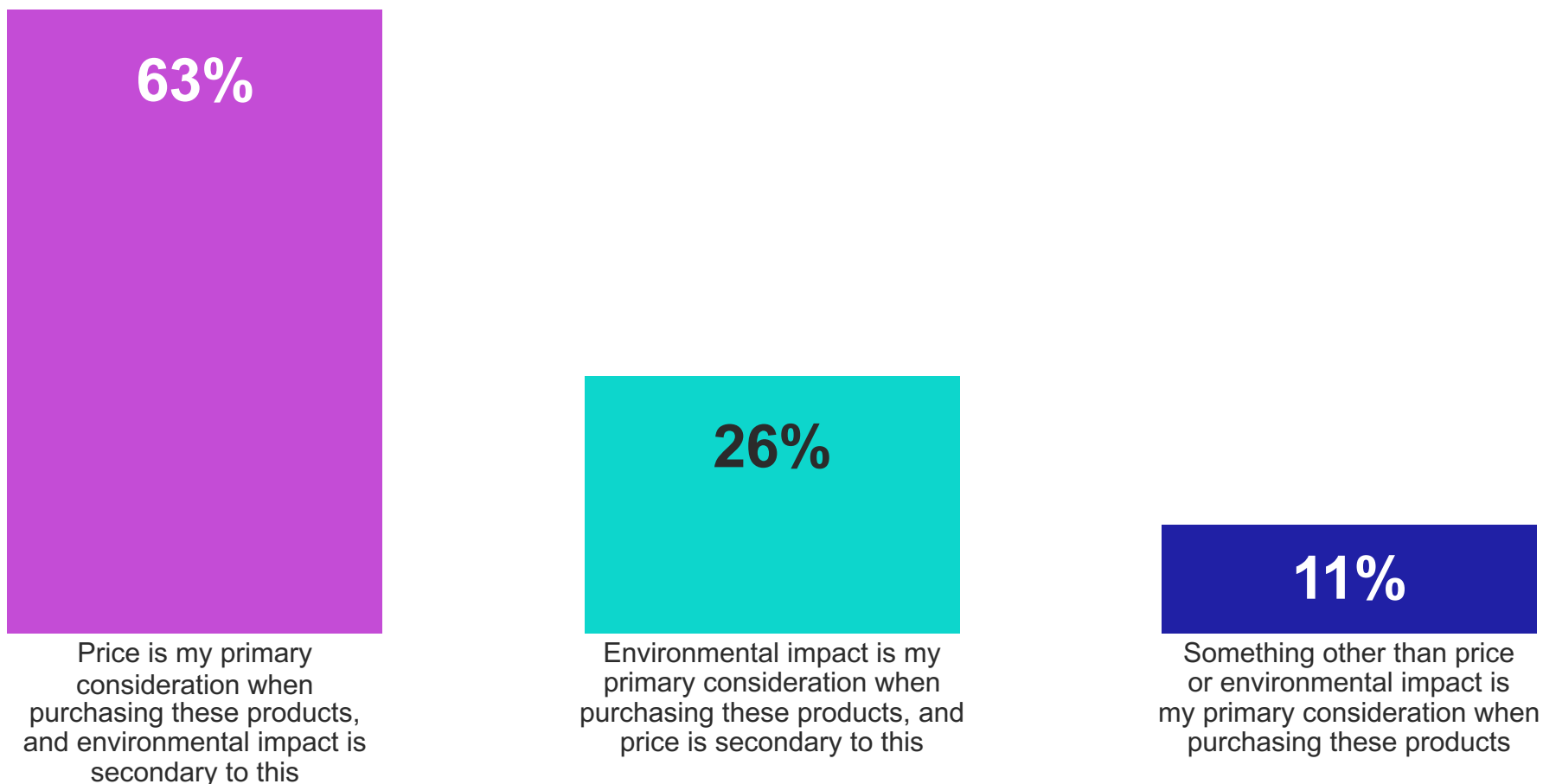
Would each of the following make you more or less likely to consider purchasing consumer products related to green energy technology?

Total More Likely	Adults	Green Energy Evangelists	Green Energy Promoters	Green Energy Passives	Green Energy Detractors
Lower prices	75%	91%	85%	64%	58%
Rebates or incentives to reduce costs	70%	88%	80%	60%	47%
Function/performance of product	67%	88%	78%	55%	41%
Free availability through a utility- or community-sponsored program	66%	88%	74%	56%	40%
Greater availability	64%	87%	74%	50%	34%
Tax credits for purchasing the product	64%	82%	75%	53%	38%
Ability to see/test the product before purchasing	62%	79%	71%	52%	36%
Ability to upgrade in the future	59%	84%	68%	43%	30%
Better understanding of product(s)' environmental impact	58%	84%	69%	41%	21%
More aftermarket support in person	50%	71%	59%	35%	28%
More aftermarket support online	49%	72%	57%	33%	28%
Greater customization options	44%	68%	53%	27%	19%
More styles to choose from	40%	56%	46%	31%	21%
Family member(s) or friend(s) owning them	28%	42%	34%	18%	15%
Neighbor(s) owning them	20%	30%	21%	15%	11%
Social status associated with product	17%	24%	21%	13%	6%

## PERSONAL USAGE – INCENTIVES + BARRIERS

When it comes to purchasing green energy-related products, price outweighs environmental impact for the majority of adults (63%).

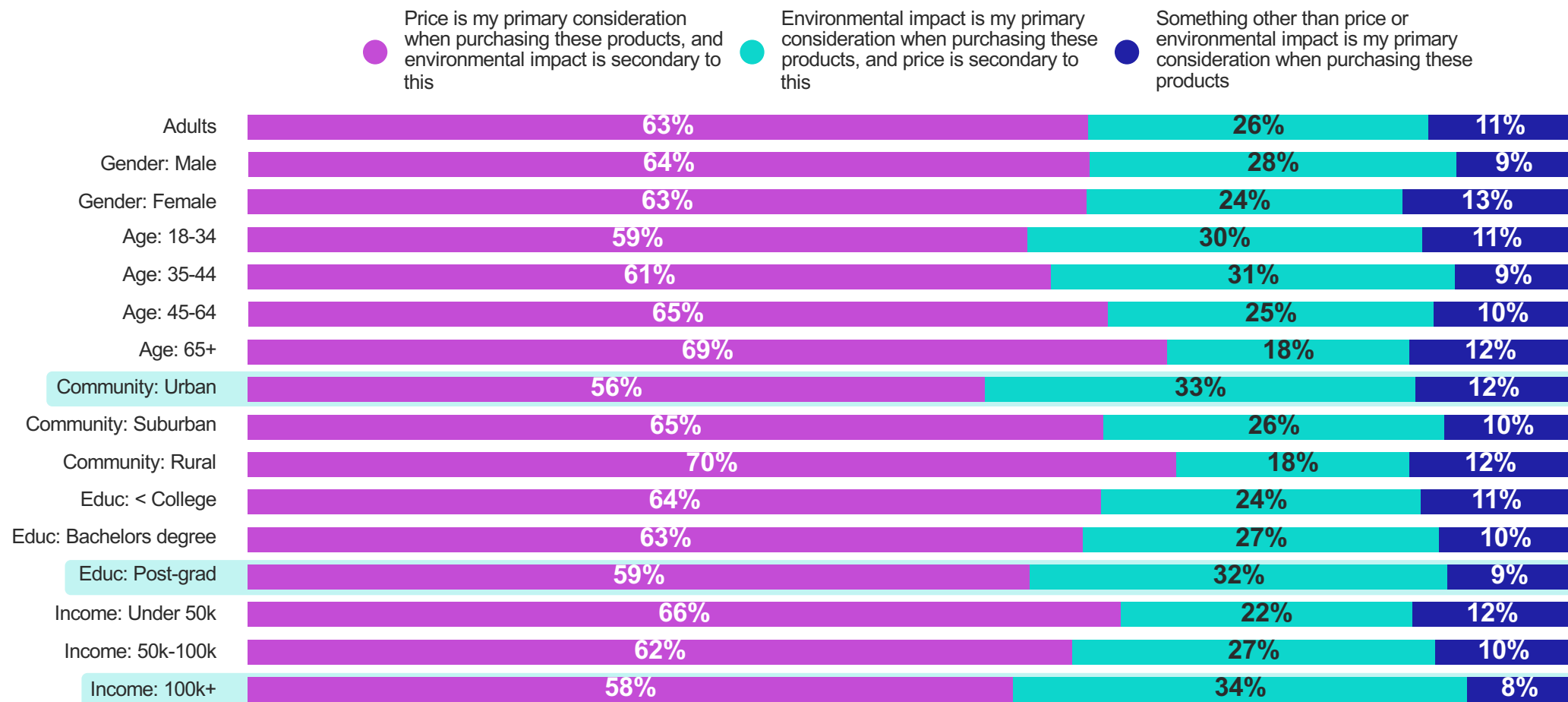
Which of the following comes closest to your view about purchasing green energy-related products?



## PERSONAL USAGE – INCENTIVES + BARRIERS

Around one-third of adults earning \$100k+ (34%), with a post-grad degree (32%), and living in urban communities (33%), say environmental impact outweighs price when purchasing green energy-related products.

Which of the following comes closest to your view about purchasing green energy-related products?



AGENDA

SEGMENTATIONS

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PERSONAL USAGE – GENERAL PERCEPTIONS

PERSONAL USAGE – INCENTIVES + BARRIERS

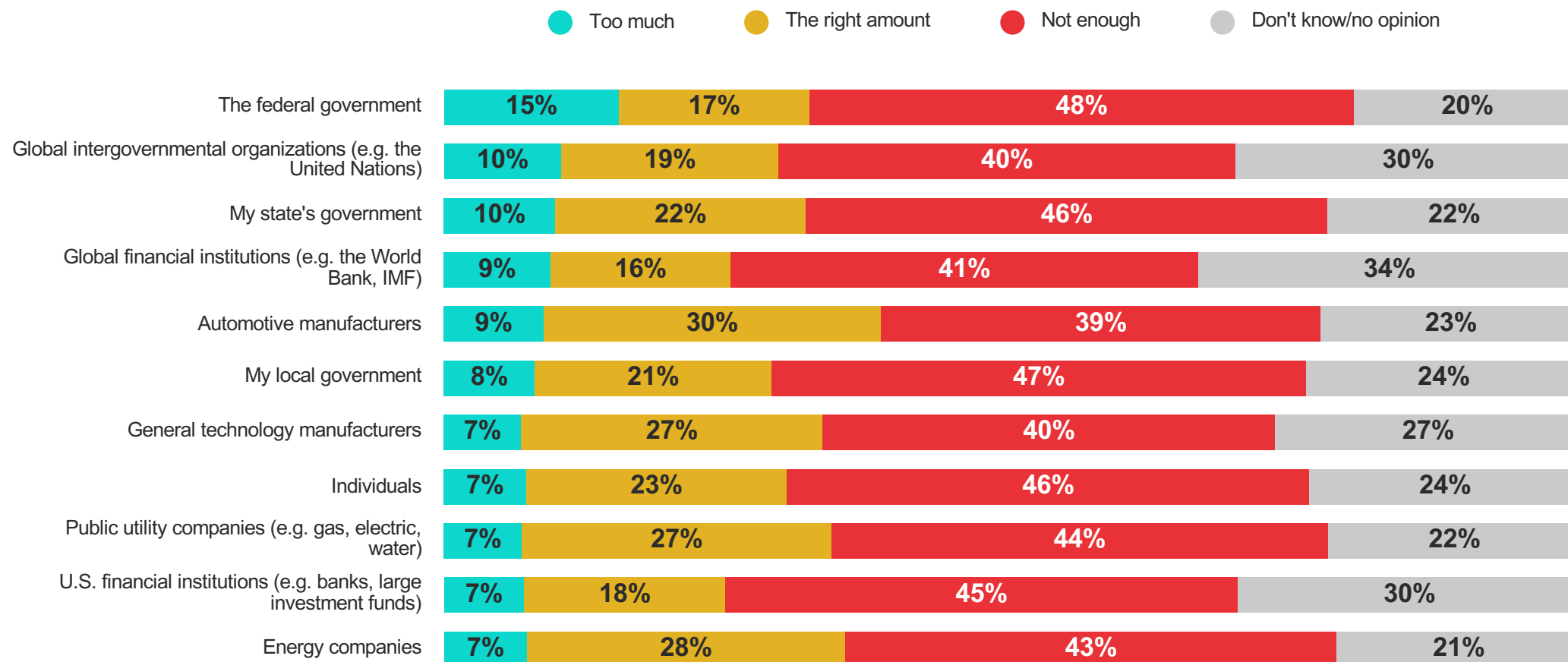
THE FUTURE OF GREEN ENERGY



## THE FUTURE OF GREEN ENERGY

Pluralities of adults say each tested option has *not done enough* to promote the use of green energy technologies in everyday life. Of those options, adults are most likely to say automotive manufacturers have done the right amount (30%).

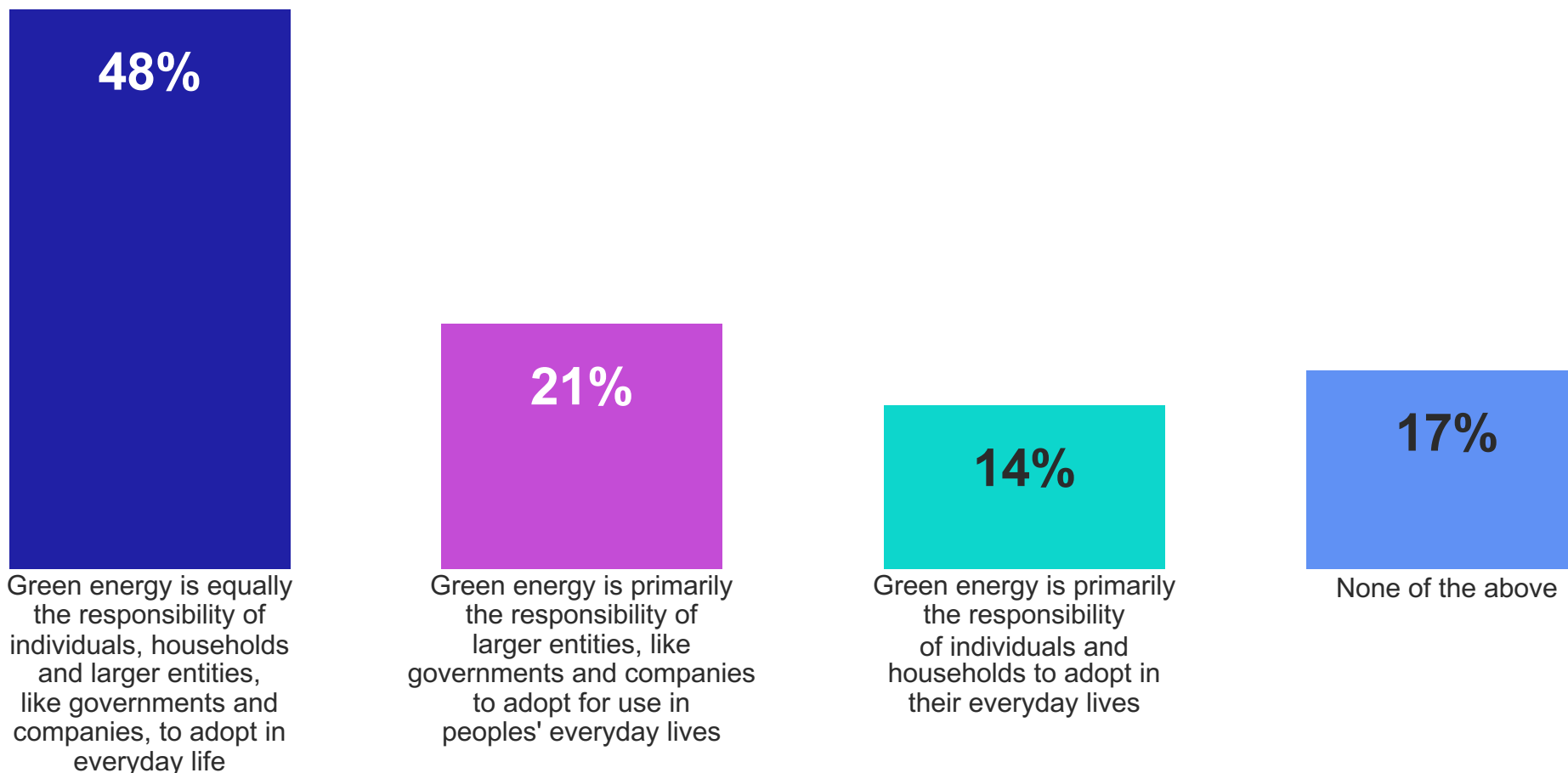
In the past 5 years, would you say each of the following has done not enough, too much, or the right amount to promote the use of green energy technologies in everyday life?



## THE FUTURE OF GREEN ENERGY

Half of adults (48%) believe green energy is equally the responsibility of individuals and businesses to adopt.

When it comes to the primary users of green energy, which of the following comes closest to your view, even if none are exactly right?

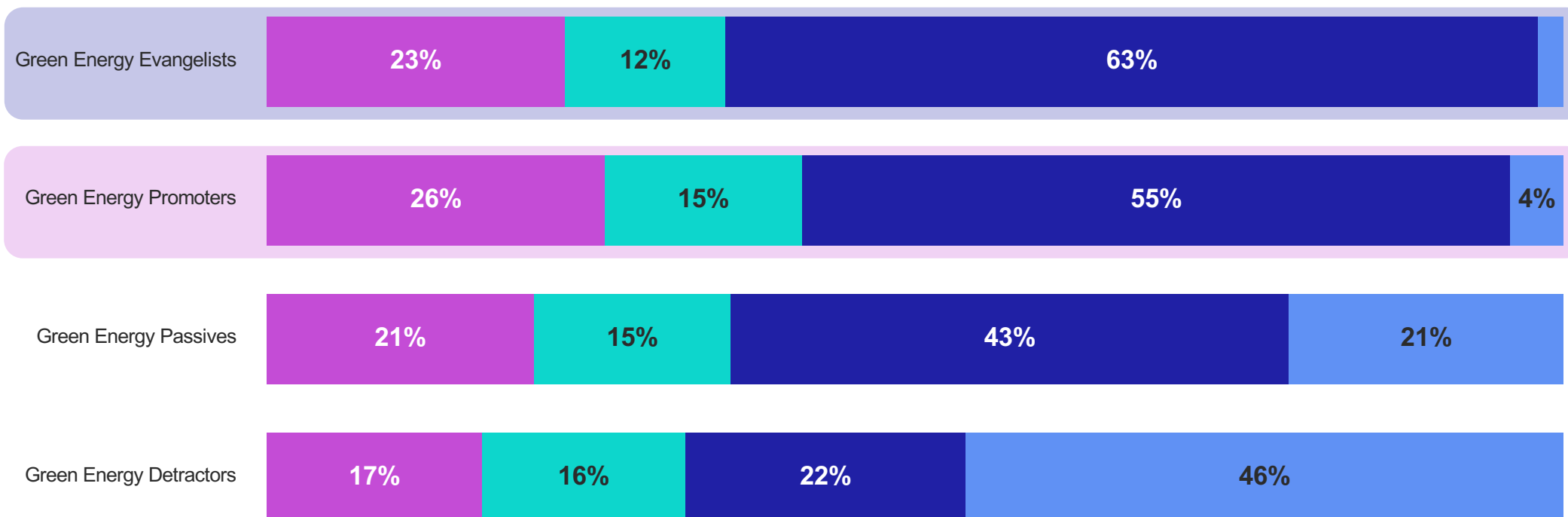
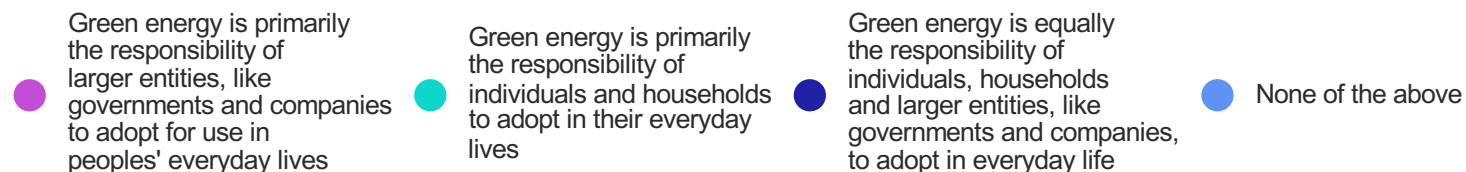




## THE FUTURE OF GREEN ENERGY

Green energy evangelists are more likely to believe that individuals and larger entities are responsible for green energy adoption (63%), while promoters are slightly more likely to put the onus on larger entities, like governments and companies (26%).

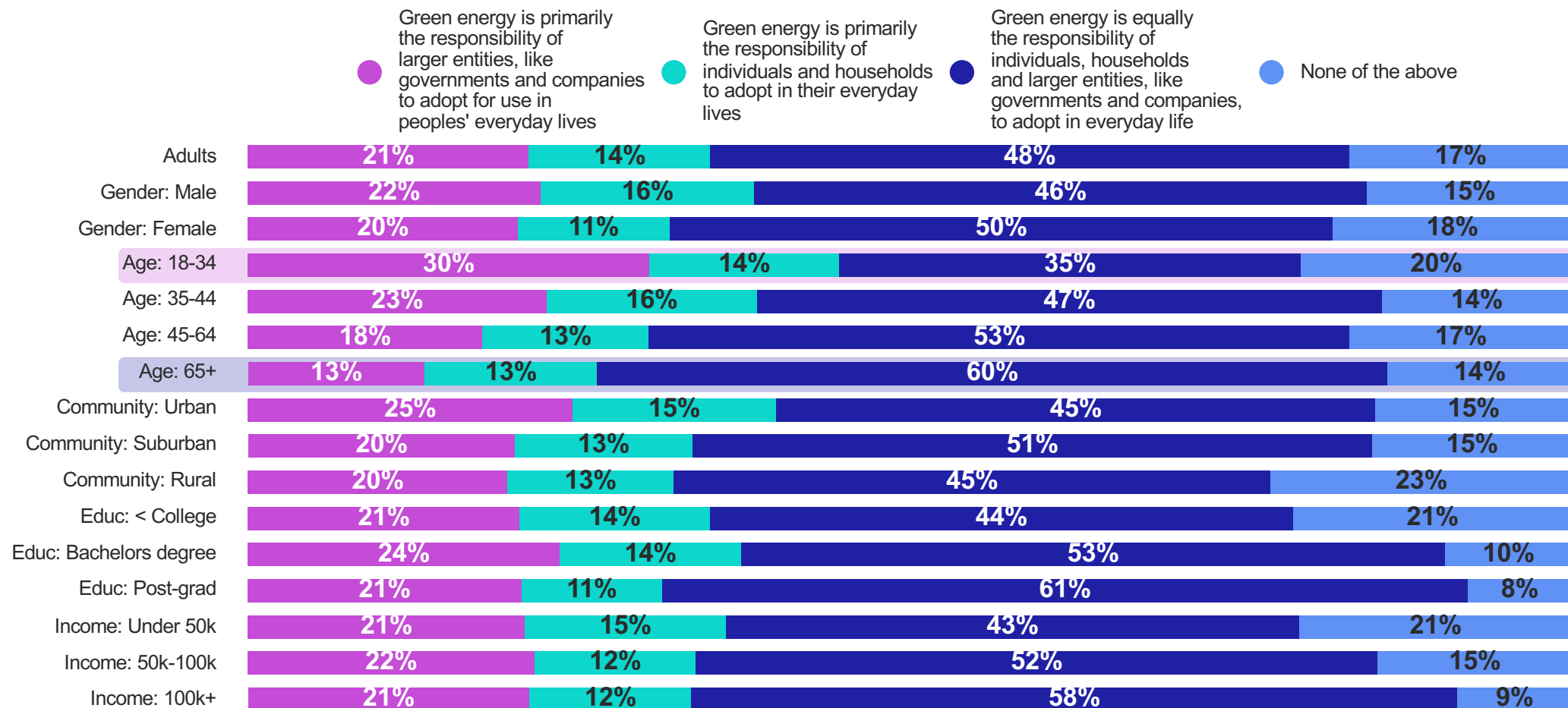
When it comes to the primary users of green energy, which of the following comes closest to your view, even if none are exactly right?



## THE FUTURE OF GREEN ENERGY

Adults ages 18-34 are the age group most likely to believe governments and larger entities are responsible for green energy adoption (30%), while a majority of those age 65+ believe individuals and governments are equally responsible (60%).

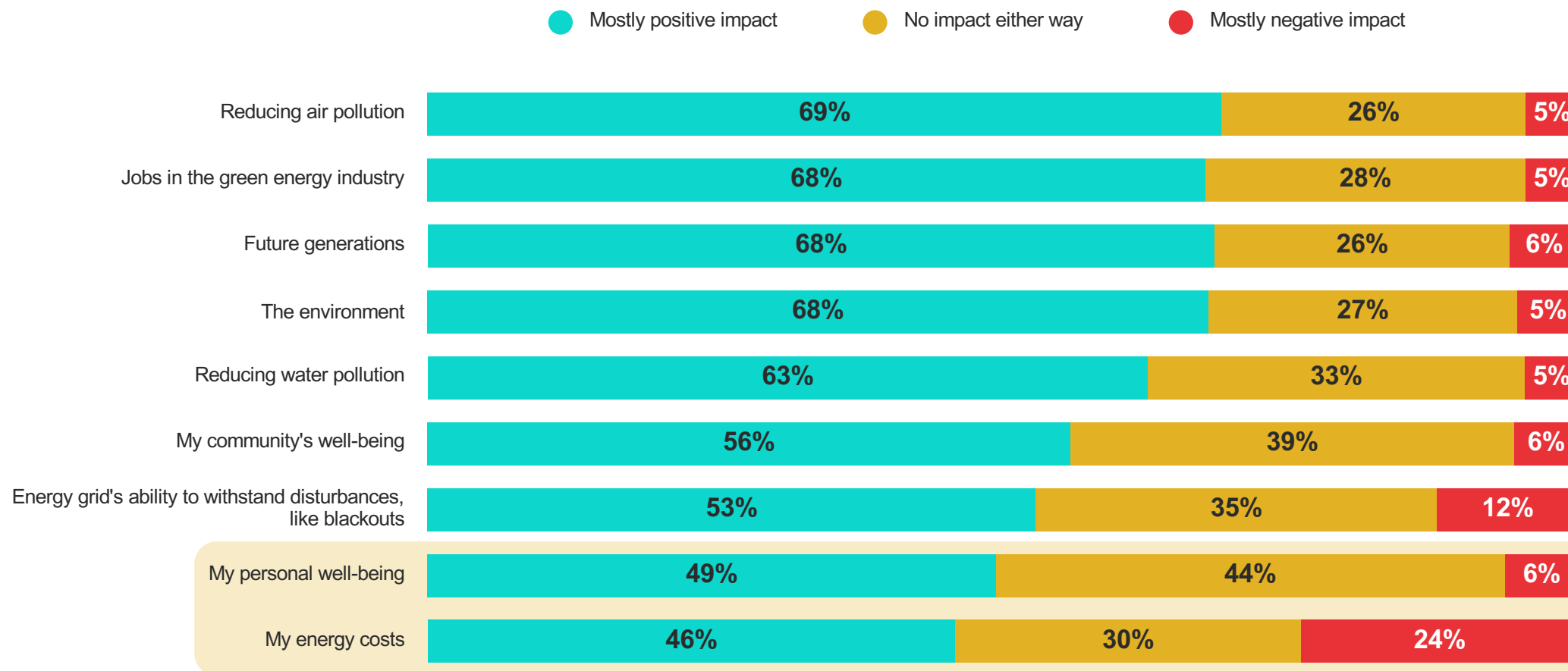
When it comes to the primary users of green energy, which of the following comes closest to your view, even if none are exactly right?



## THE FUTURE OF GREEN ENERGY

While majorities of adults believe green energy systems would have a mostly positive impact on each of the tested options, perceptions are slightly mixed when it comes to green energy's impact on personal well-being and energy costs.

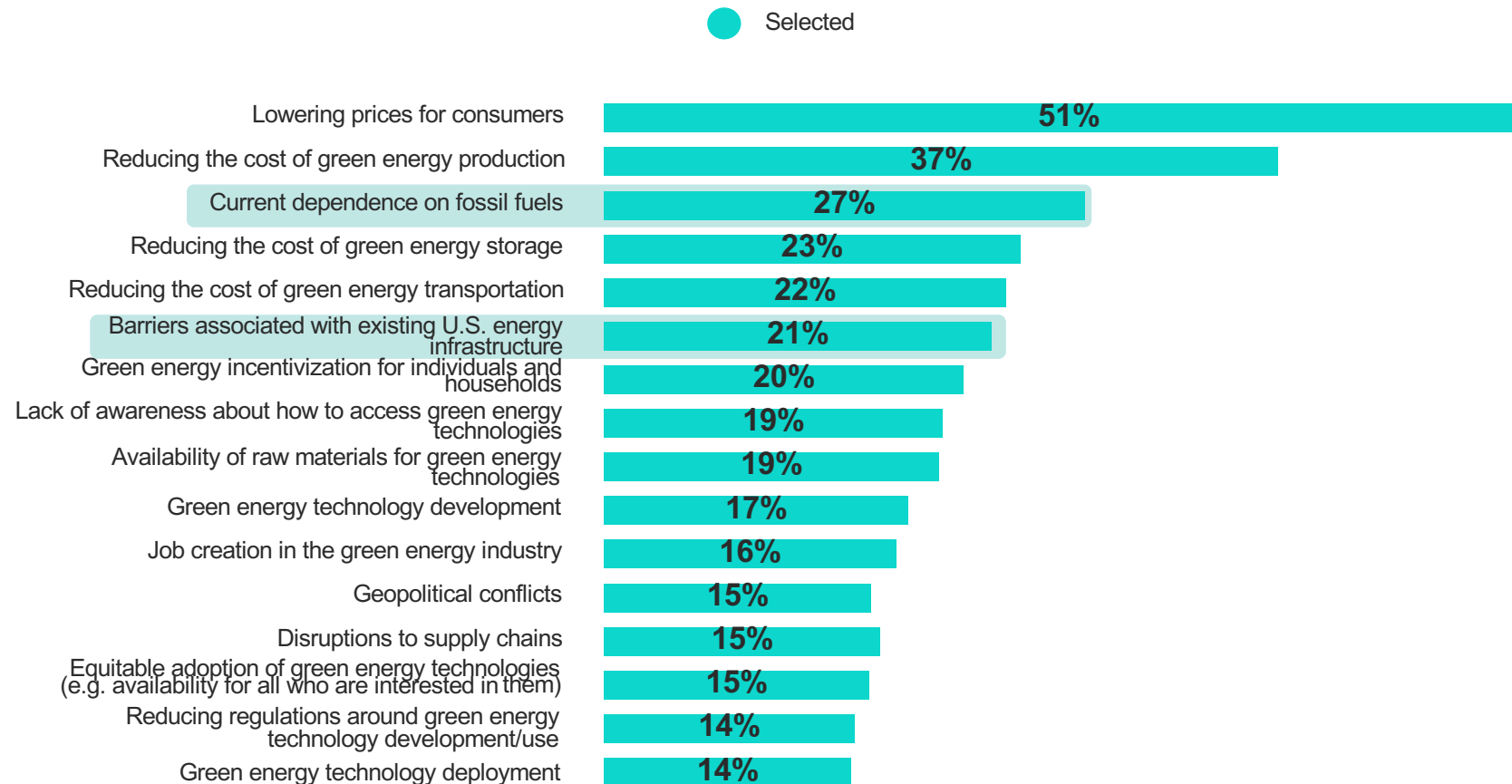
If green energy systems were to become more widespread in everyday life, what kind of impact, if any, do you think it would have on each of the following?



## THE FUTURE OF GREEN ENERGY

Outside of cost-related barriers to green energy adoption, adults also view the current dependence on fossil fuels (27%) and barriers associated with the U.S.' existing energy infrastructure (21%) as important to address in the next five years.

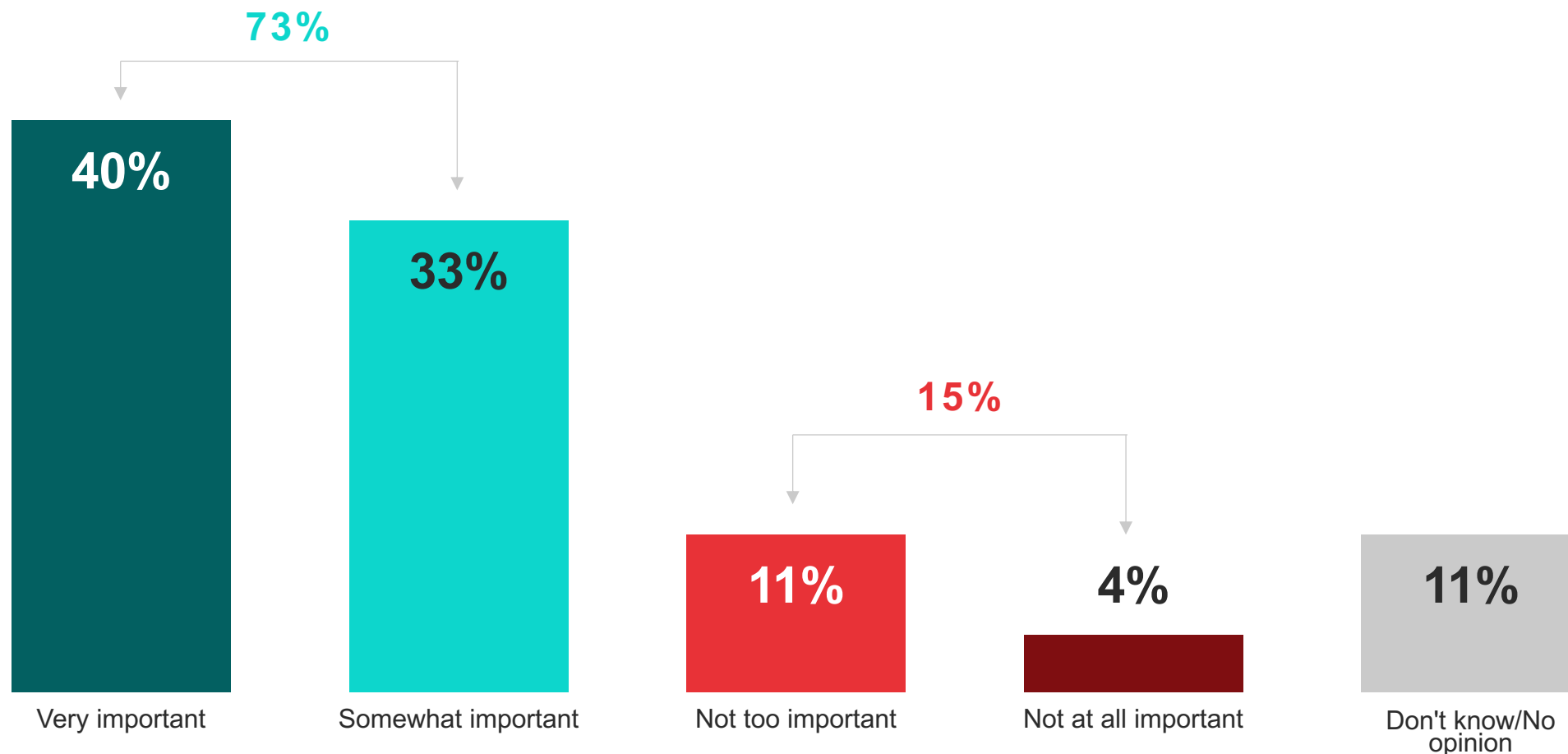
In the next five years, which of the following, if any, will be the most important barriers to green energy adoption for the U.S. to address? Please select up to five options.



## THE FUTURE OF GREEN ENERGY

Three-in-four adults (73%) believe it is important for colleges and universities to offer education that prepares students for green careers.

The U.S. Department of Labor defines a green career as "any occupation that is affected by activities such as conserving energy, developing alternative energy, reducing pollution, or recycling." How important is it, if at all, for universities and colleges to offer education that prepares students for green careers?

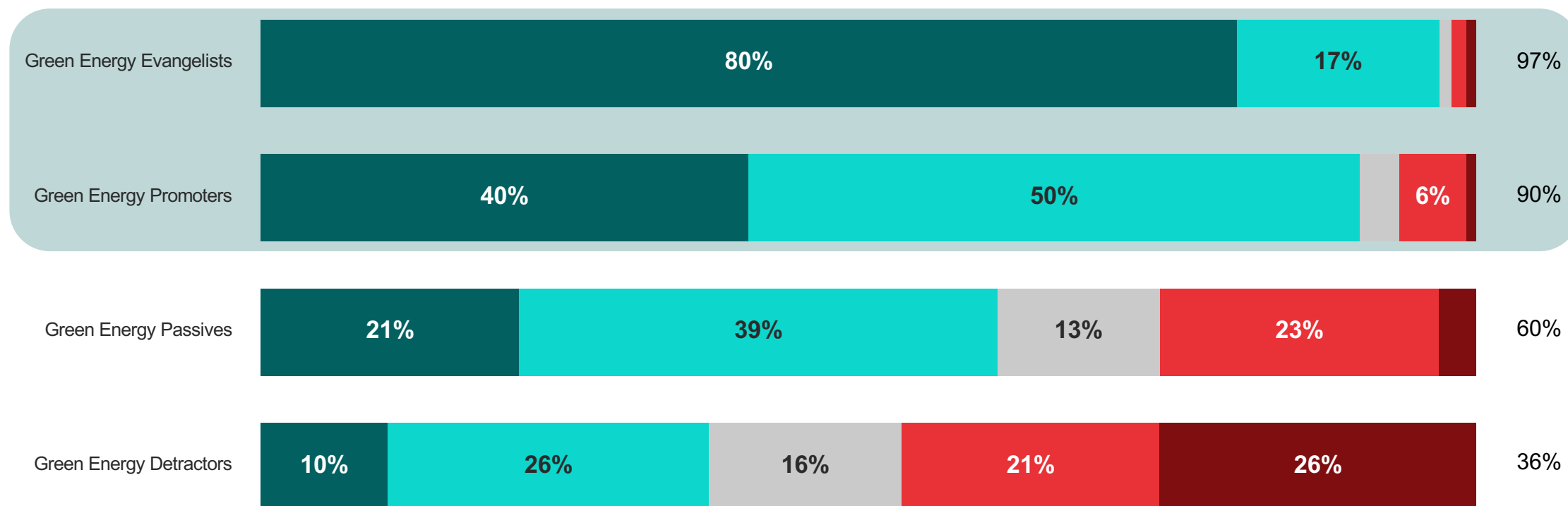


## THE FUTURE OF GREEN ENERGY

Large majorities of green energy evangelists (97%) and promoters (90%) believe in the importance of offering education that prepares students for green careers, although intensity of opinion differs between the two groups.

The U.S. Department of Labor defines a green career as "any occupation that is affected by activities such as conserving energy, developing alternative energy, reducing pollution, or recycling." How important is it, if at all, for universities and colleges to offer education that prepares students for green careers?

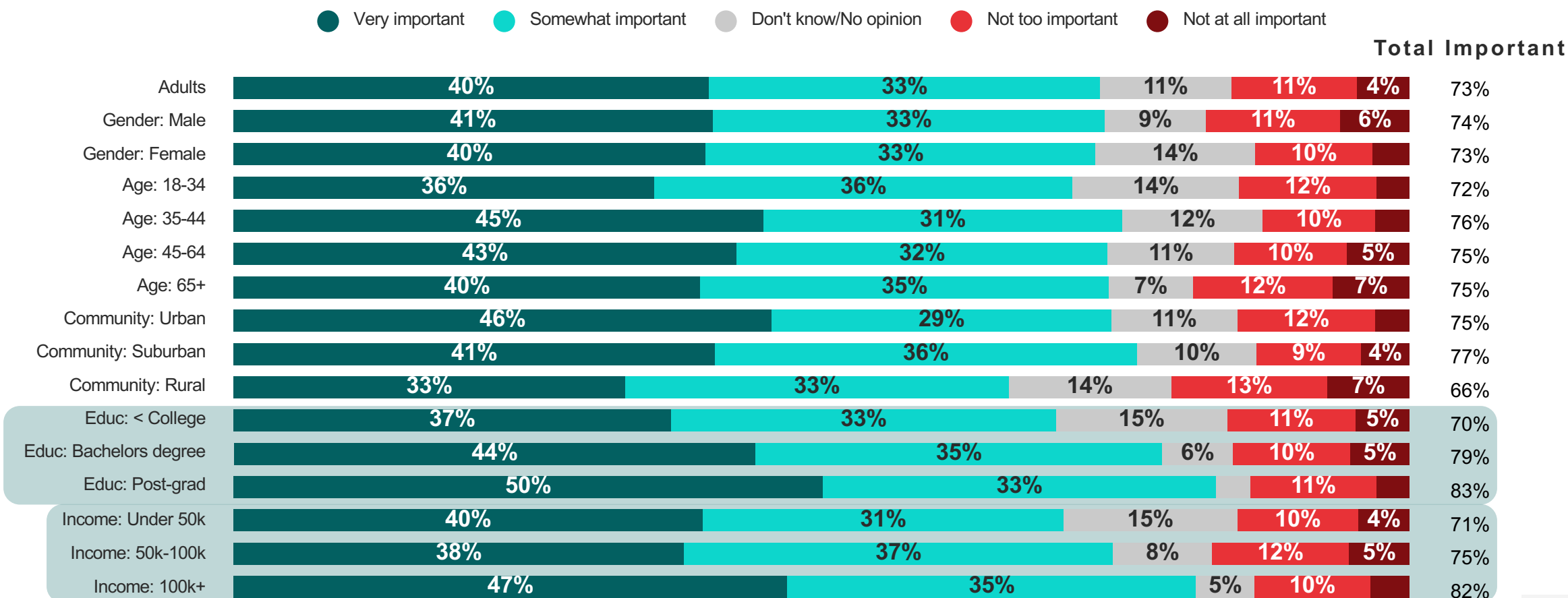
Very important
Somewhat important
Don't know/No opinion
Not too important
Not at all important
**Total Important**



## THE FUTURE OF GREEN ENERGY

While adults across key demographic groups view green energy career preparation as important, perceptions of importance tend to increase with income and education level.

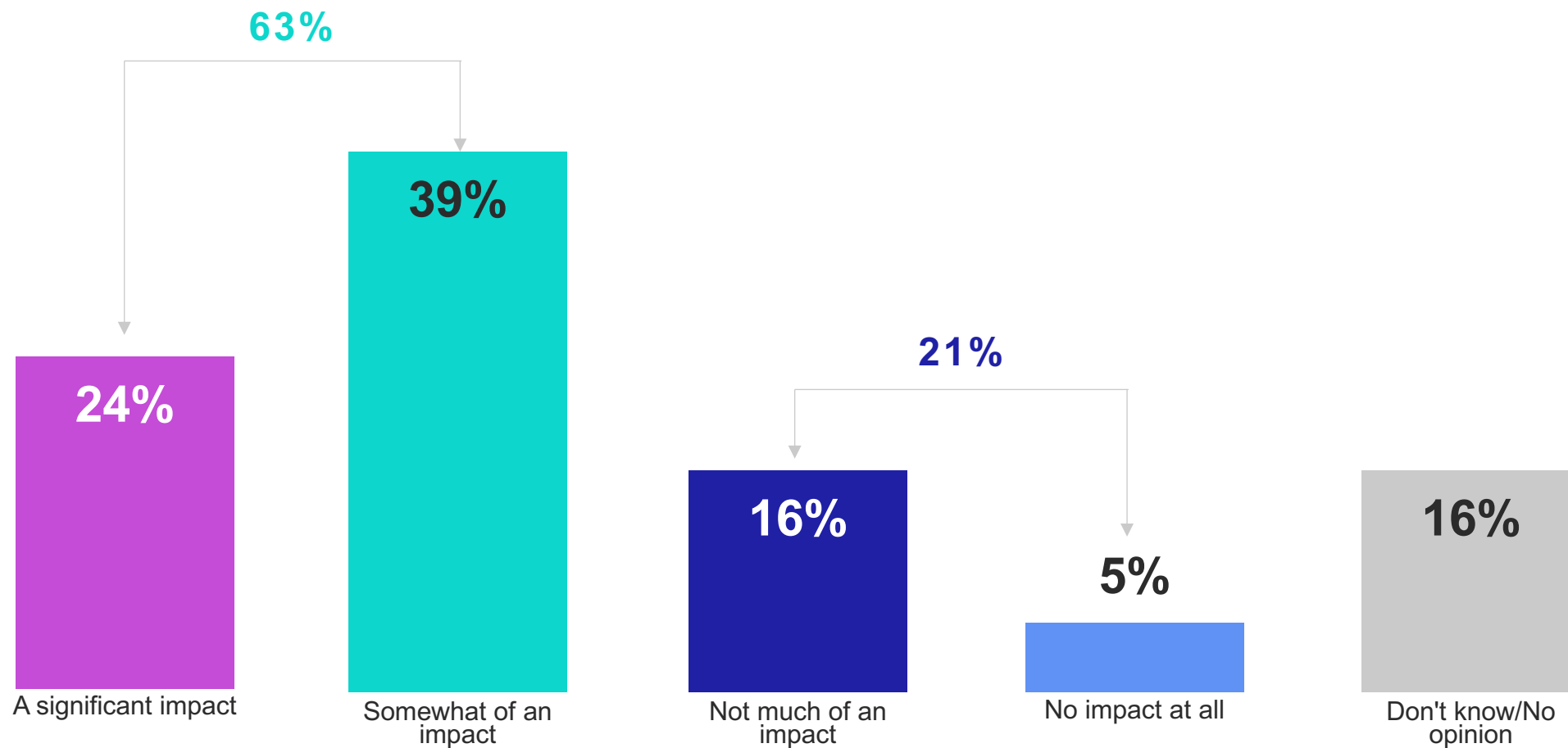
The U.S. Department of Labor defines a green career as "any occupation that is affected by activities such as conserving energy, developing alternative energy, reducing pollution, or recycling." How important is it, if at all, for universities and colleges to offer education that prepares students for green careers?



## THE FUTURE OF GREEN ENERGY

Nearly two-thirds of adults (63%) believe universities and colleges will have an impact on adults pursuing green careers in the near future.

In the next five years, what kind of impact, if any, do you think universities and colleges will have on adults pursuing green careers?

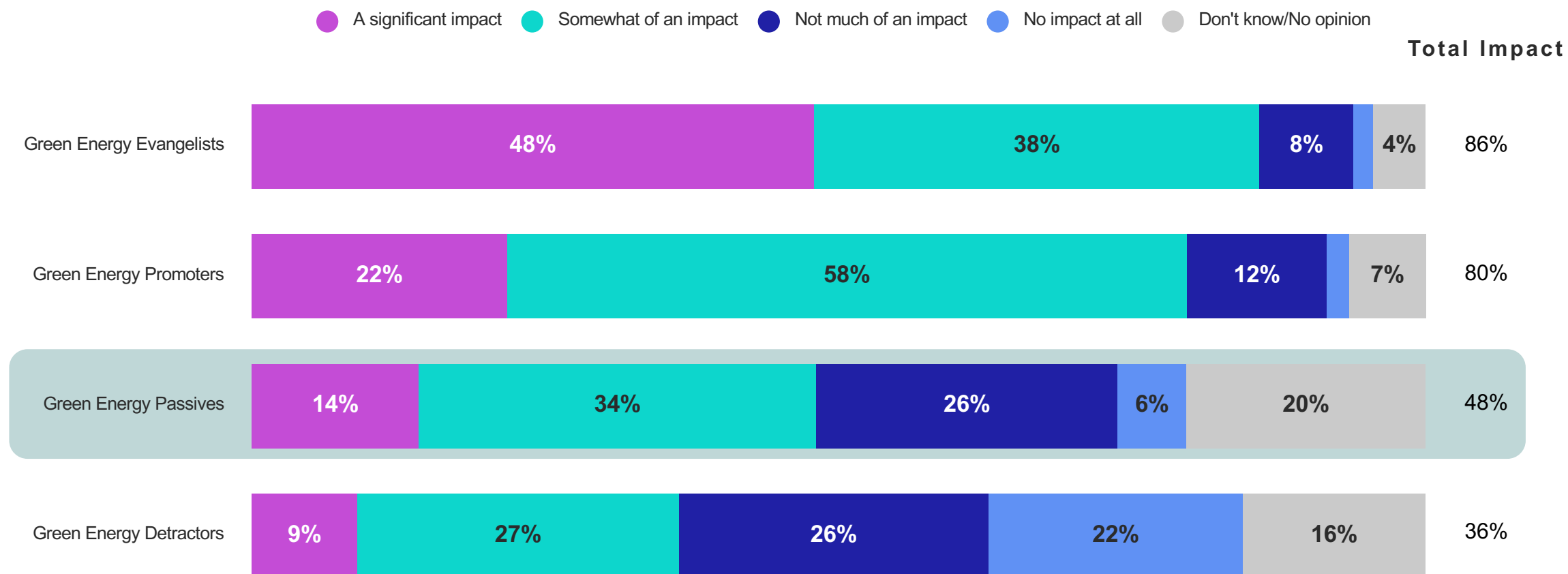




## THE FUTURE OF GREEN ENERGY

Half of green energy passives (48%) believe colleges and universities will have an impact on adults pursuing green careers.

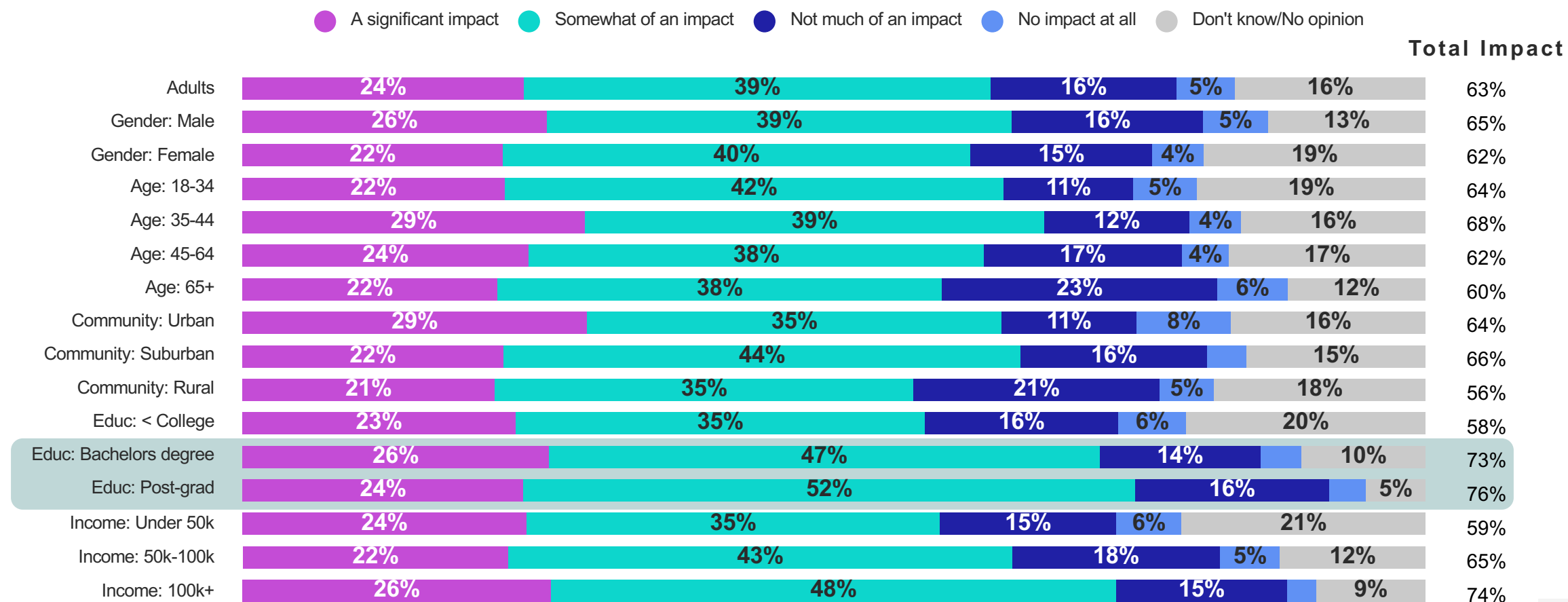
In the next five years, what kind of impact, if any, do you think universities and colleges will have on adults pursuing green careers?



## THE FUTURE OF GREEN ENERGY

Around three-quarters of adults with bachelor's degrees (73%) or higher (76%) say higher education institutions will have an impact on those pursuing green careers.

In the next five years, what kind of impact, if any, do you think universities and colleges will have on adults pursuing green careers?

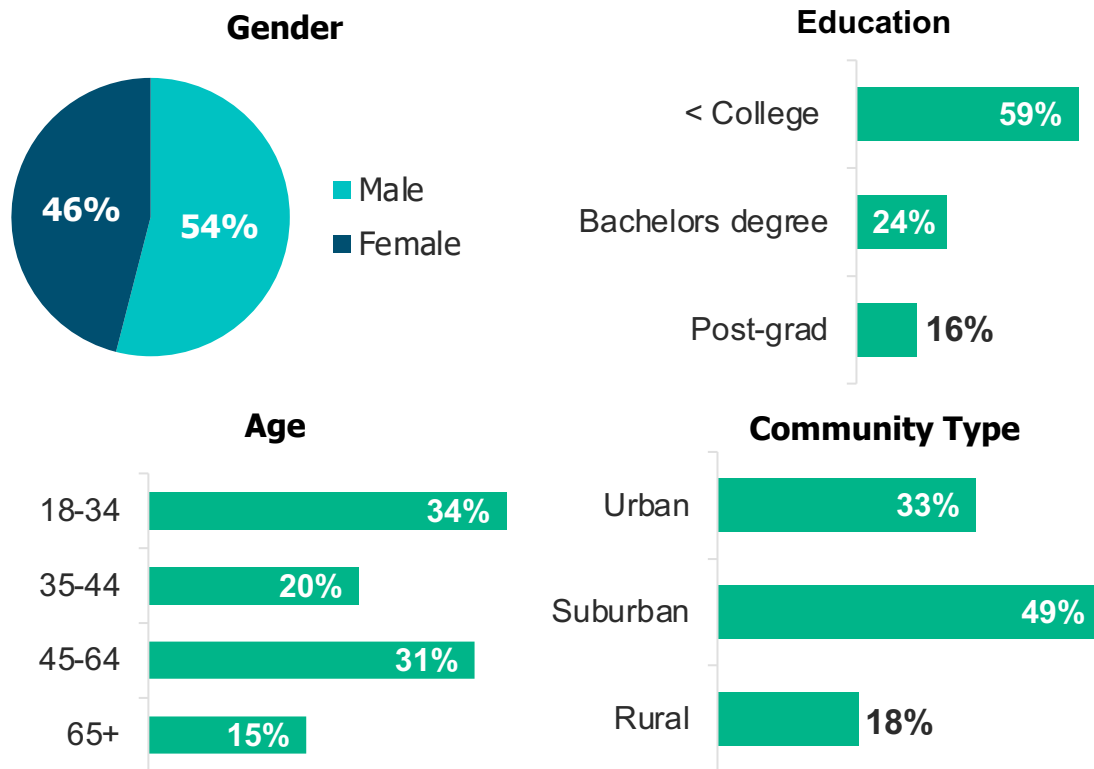




## APPENDIX

### Green Energy Evangelists

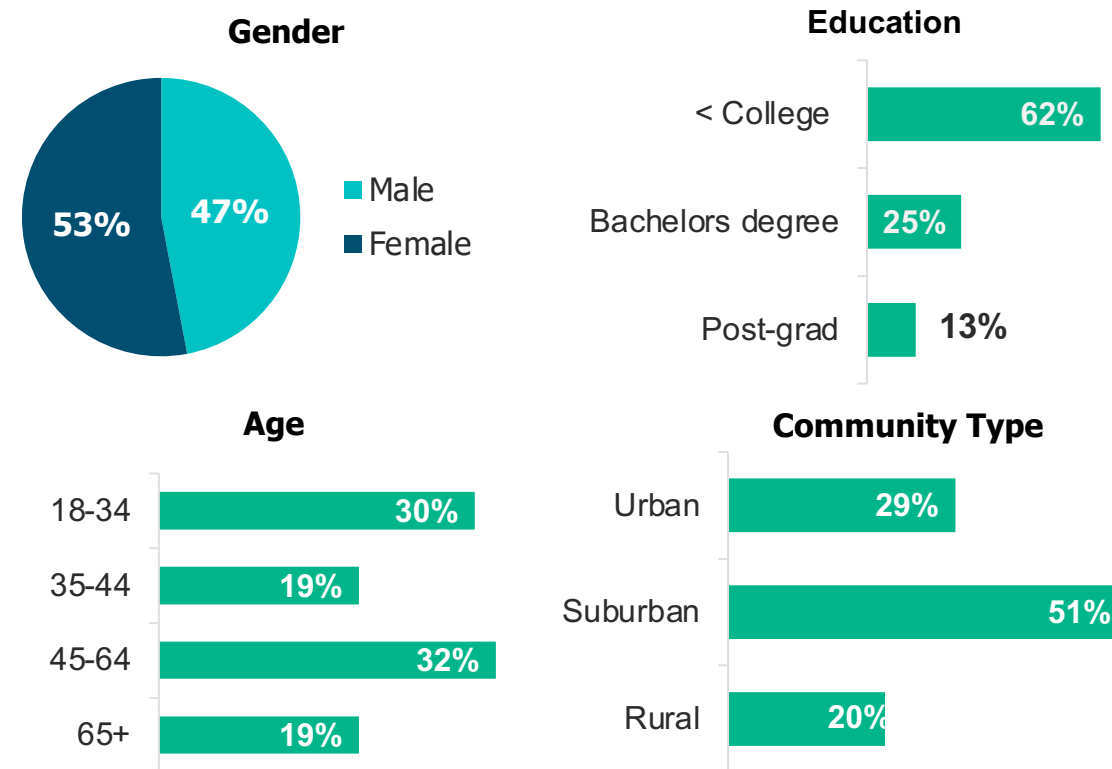
Definition: Adults who reported they would be very likely to seek out green energy technologies for use in everyday life.



Green energy evangelists skew male and younger, are most likely to be urban, and are most likely to have a post-grad degree.

### Green Energy Promoters

Definition: Adults who reported they would be somewhat likely to seek out green energy technologies for use in everyday life.

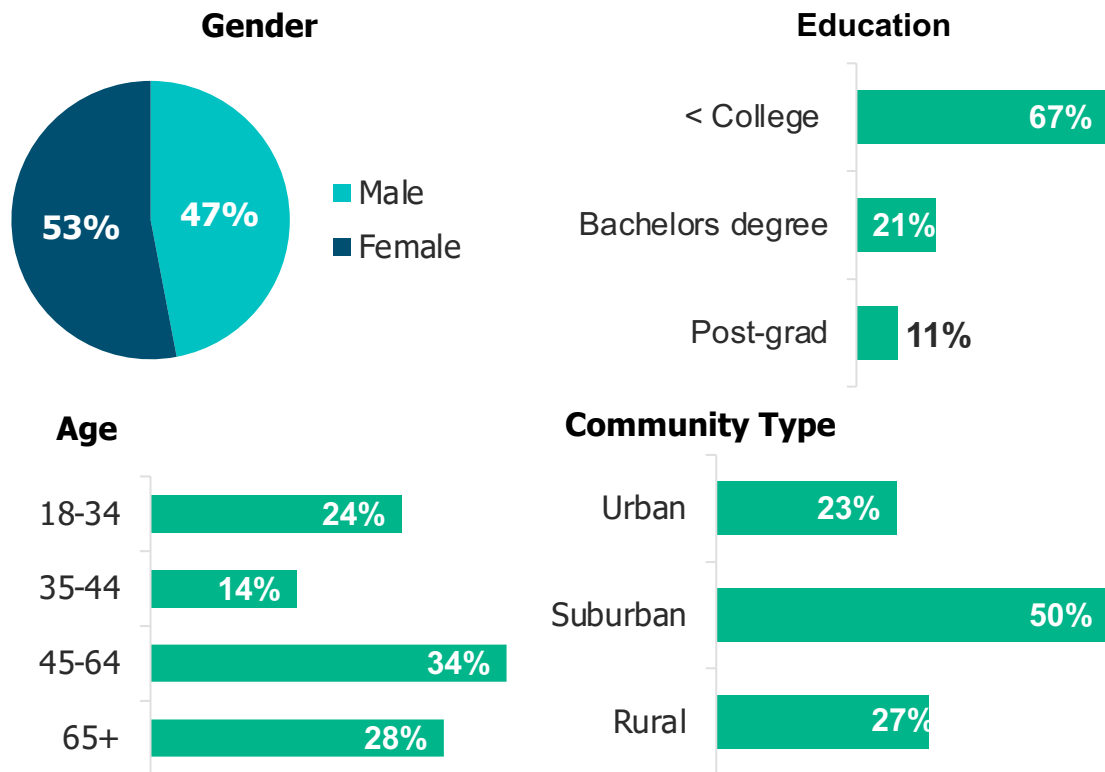


Green energy promoters skew slightly female, urban or suburban, and somewhat highly educated.

## APPENDIX

### Green Energy Passives

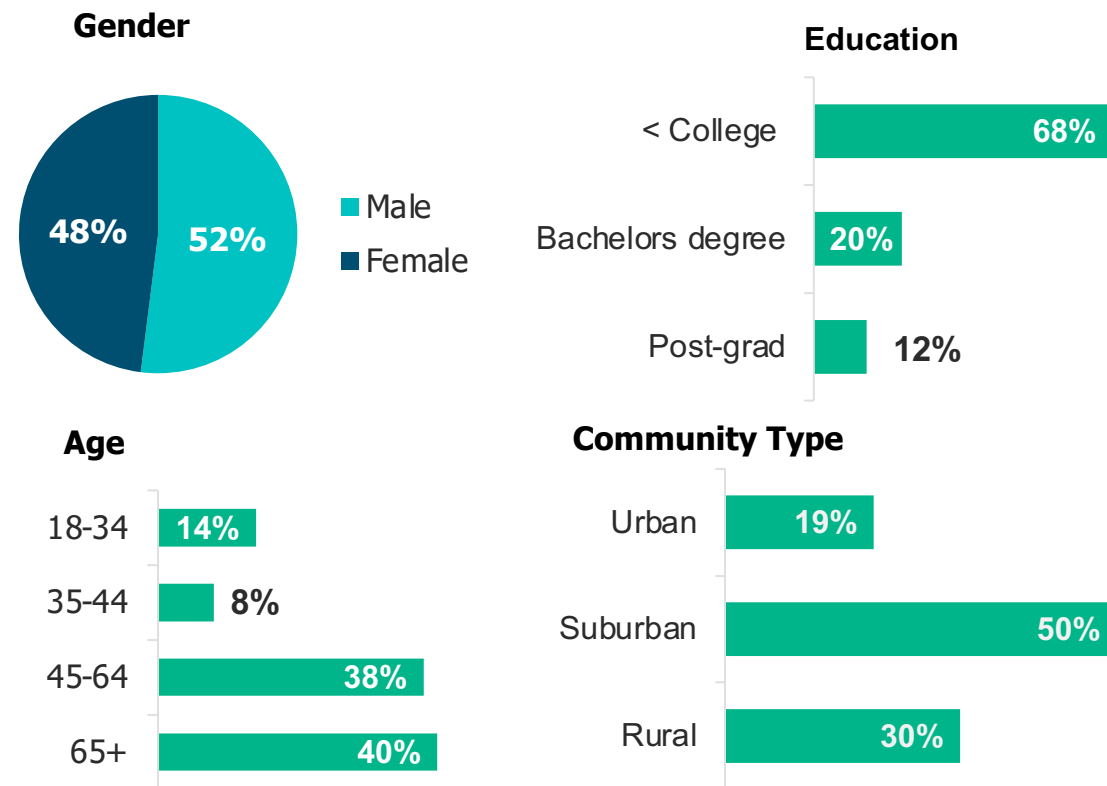
Definition: Adults who reported they would be neither likely nor unlikely, or somewhat unlikely to seek out green energy technologies for use in everyday life.



Green energy passives skew slightly female, suburban or rural, older and less educated.

### Green Energy Detractors

Definition: Adults who reported they would be very unlikely to seek out green energy technologies for use in everyday life.



Green energy detractors skew slightly male, are most likely to be 65+, educated, older and more rural.