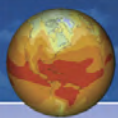


CLIMATE CHANGE IN THE AMERICAN MIND

April 2014



YALE PROJECT ON
**CLIMATE CHANGE
COMMUNICATION**
BRIDGING SCIENCE + SOCIETY



4C

George Mason University
Center for Climate Change Communication

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Introduction

This report is based on findings from a nationally representative survey – *Climate Change in the American Mind* – conducted by the Yale Project on Climate Change Communication (<http://environment.yale.edu/climate-communication>) and the George Mason University Center for Climate Change Communication (<http://www.climatechangecommunication.org>). Interview dates: April 11 - 21, 2014. Interviews: 1,013 Adults (18+). Total average margin of error: +/- 3 percentage points at the 95% confidence level. The research was funded by the Energy Foundation, the 11th Hour Project, the Grantham Foundation, and the V.K. Rasmussen Foundation.

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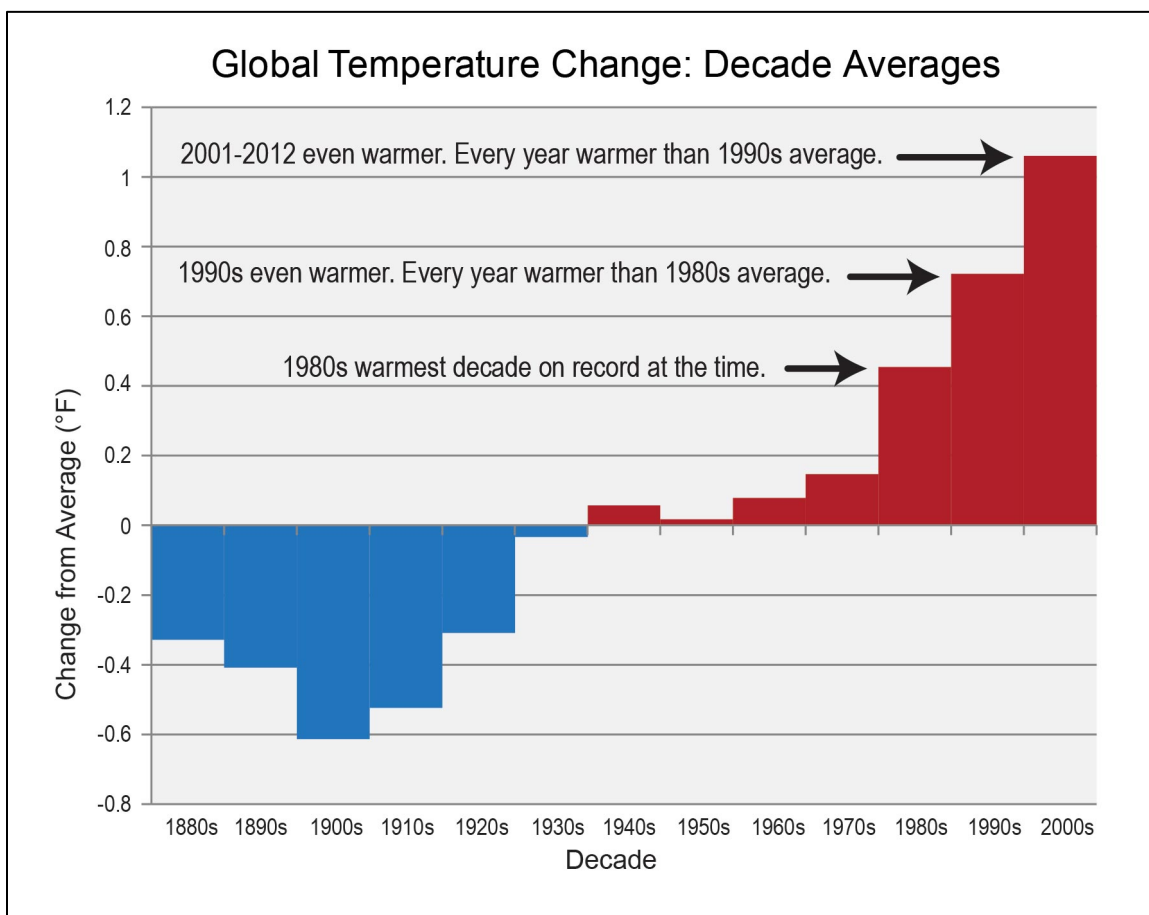
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Key Findings

This “Key Findings” section highlights just a few selected results. Please see the “Topline Findings” section (Appendix 1) for additional results.

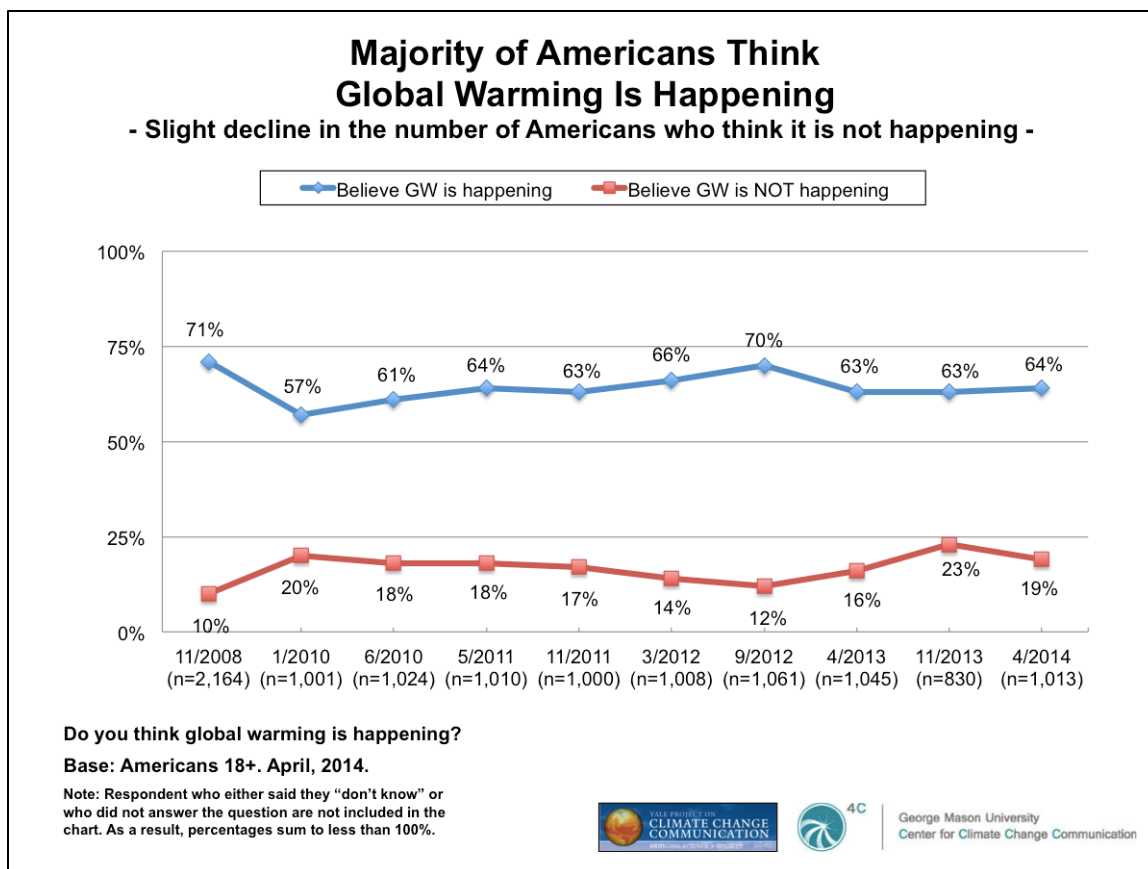
1. A majority of Americans think global warming is happening and they are increasingly certain.

The reality of climate change – worldwide and in the United States – is a well-established scientific fact. The first finding in the recently released 2014 [National Climate Assessment](#) (written and reviewed by hundreds of climate experts over the past 4 years), for example, concluded: “Global climate is changing and this is apparent across the United States in a wide range of observations.”



Bars show the difference between each decade’s average temperature and the overall average for 1901 to 2000. The far right bar includes data for 2001-2012. (Source: U.S. [National Climate Assessment](#)).

By more than a three-to-one margin, more Americans think global warming is happening than think it is not. Currently, 64% of Americans think global is happening, a number that has been relatively stable over the past three years.



Moreover, Americans' certainty that the Earth is warming has increased over the past three years. Currently, of those who think global warming is happening, nearly two in three (62%) say they are either extremely (30%) or very (32%) sure that it is. Three years ago, in May 2011, fewer (54%) were as sure. And over the same three-year period, those who think global warming is *not* happening have become substantially *less* sure of their position (from 52% in May 2011, to 41% today).

These findings are particularly interesting in light of the fact that the survey was conducted shortly after much of the country experienced a particularly cold winter, including the “polar vortex”, suggesting that Americans' growing certainty that global warming is happening was relatively unaffected by their recent experience of extreme cold weather.

Trend: Americans Who Think Global Warming Is Happening Are Growing More Certain; Those Who Do Not Are Becoming Less Certain



How sure are you that global warming is/is not happening?

Base: Americans 18+. April, 2014.

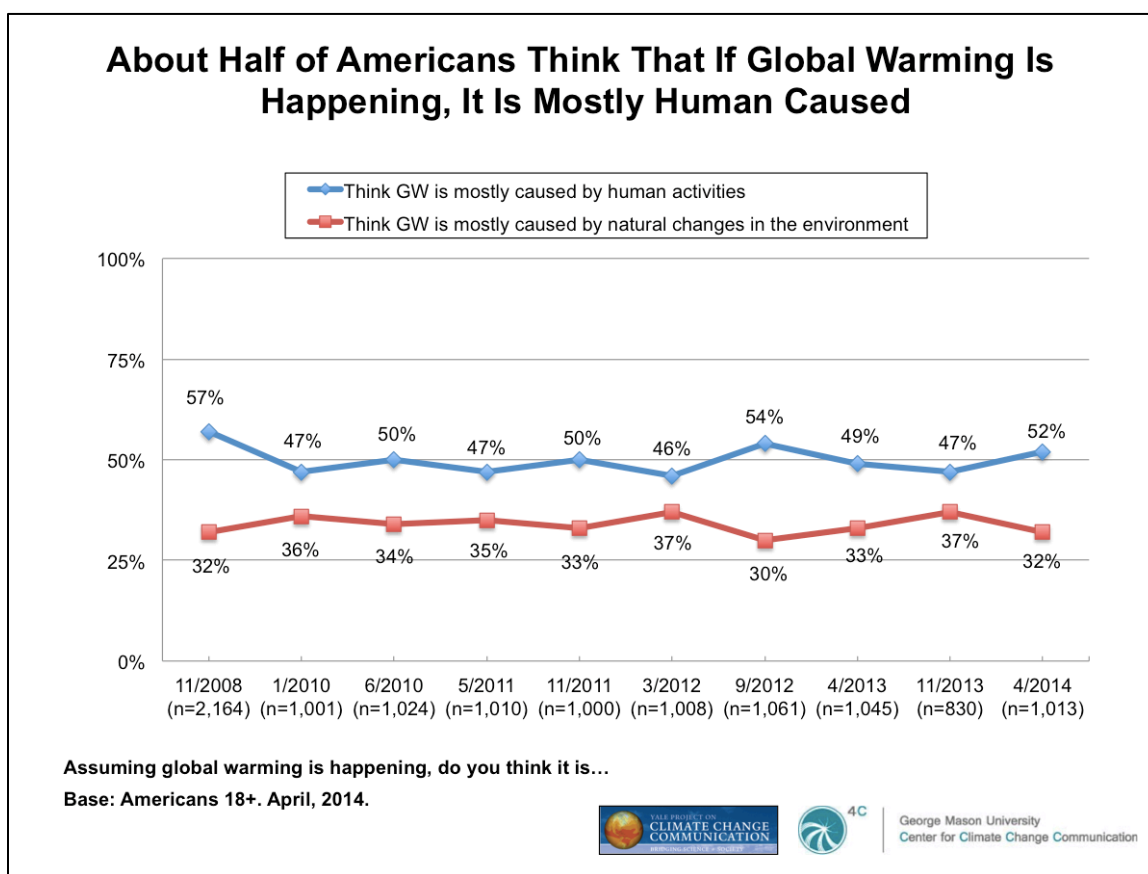


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2. About half of Americans think that if global warming is happening, it is caused mostly by human activities. One in three thinks it is caused mostly by natural changes in the environment.



The 2014 U.S. [National Climate Assessment](#) states: “the global warming of the past 50 years is primarily due to human activities, predominantly the burning of fossil fuels. Many independent lines of evidence confirm that human activities are affecting climate in unprecedented ways.”



Currently, half of Americans (52%) think that global warming, if it is happening, is mostly human caused. By contrast, one in three (32%) say they think it is due mostly to natural changes in the environment. Public understanding and acceptance of the human contribution to global warming has fluctuated over the past several years, but is currently 5 percentage points higher than in May 2011, while belief that global warming is naturally caused is 3 points lower.

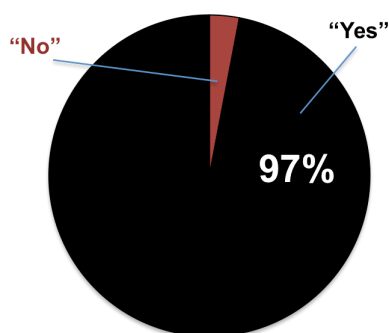
3. Based on the evidence, 97% of climate scientists have concluded that human-caused global warming is happening, but most Americans either do not know, or do not accept, this fact.



In the latest study investigating the degree of scientific consensus on climate change, Cook and colleagues (2013) examined nearly 12,000 peer-reviewed papers in the climate science literature and found that of those papers that stated a position on the reality of human-caused global warming, 97% said it is happening and at least partly human caused.

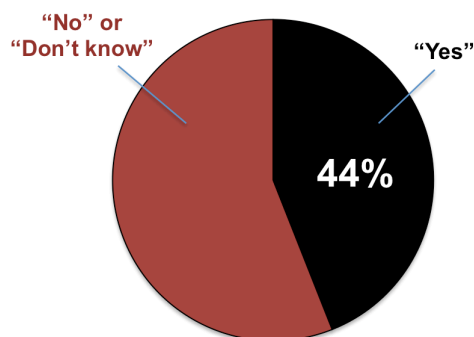
Is Global Warming Happening and Mostly Human Caused?

Climate Scientists¹ say...



¹Proportion of peer-reviewed papers that stated a position on the reality of human-caused global warming and said it is happening and human caused (Cook et. al, 2013).

The American Public² says...



²Question asked of Americans (18+): Assuming global warming is happening, do you think it is caused mostly by human activities; caused mostly by natural changes in the environment; other; none of the above because global warming isn't happening."

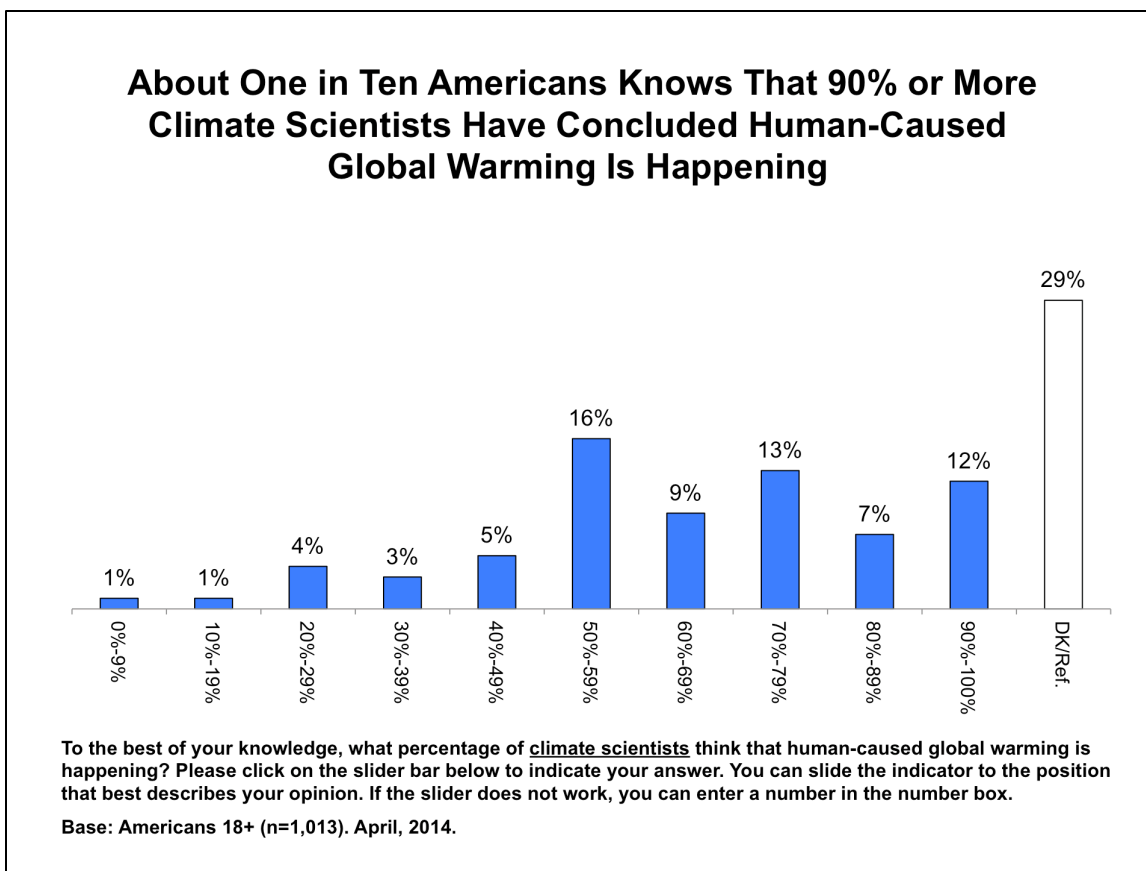
Base: Americans 18+ (n=1,013). April, 2014.



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Public understanding of climate change, however, is starkly different than the expert consensus: only 44% of Americans think global warming is both happening *and* human caused.

Moreover, only one in ten Americans (12%) know that 90% or more scientists have concluded human-caused global warming is happening. As many Americans – (14%) – think *fewer than half* of climate scientists have reached this conclusion. Another three in ten Americans (29%) say they “don’t know” (28%) or didn’t answer the question (1%).



This public misunderstanding of the degree of scientific consensus has significant consequences. Other research has identified public understanding of the scientific consensus as a critical “gateway belief” that influences other important beliefs (i.e., global warming is happening, human caused, a serious problem, and solvable) and support for action.

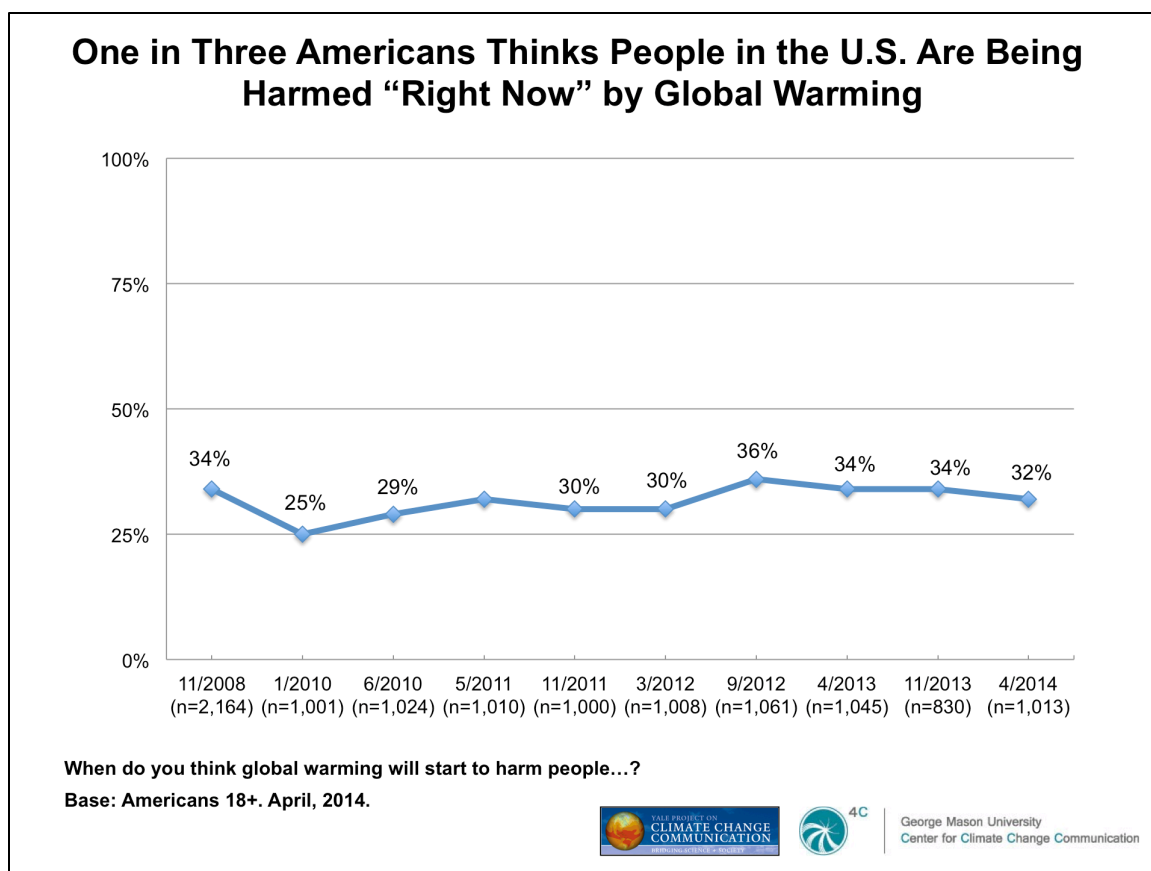
For further information, see: Ding et al. (2011); Lewandowsky et al. (2013); and McCright et al. (2013).

4. Few Americans are “very worried” about global warming and many see it as a relatively distant threat.

The evidence of global warming is steadily mounting in the United States. According to the 2014 U.S. [National Climate Assessment](#):

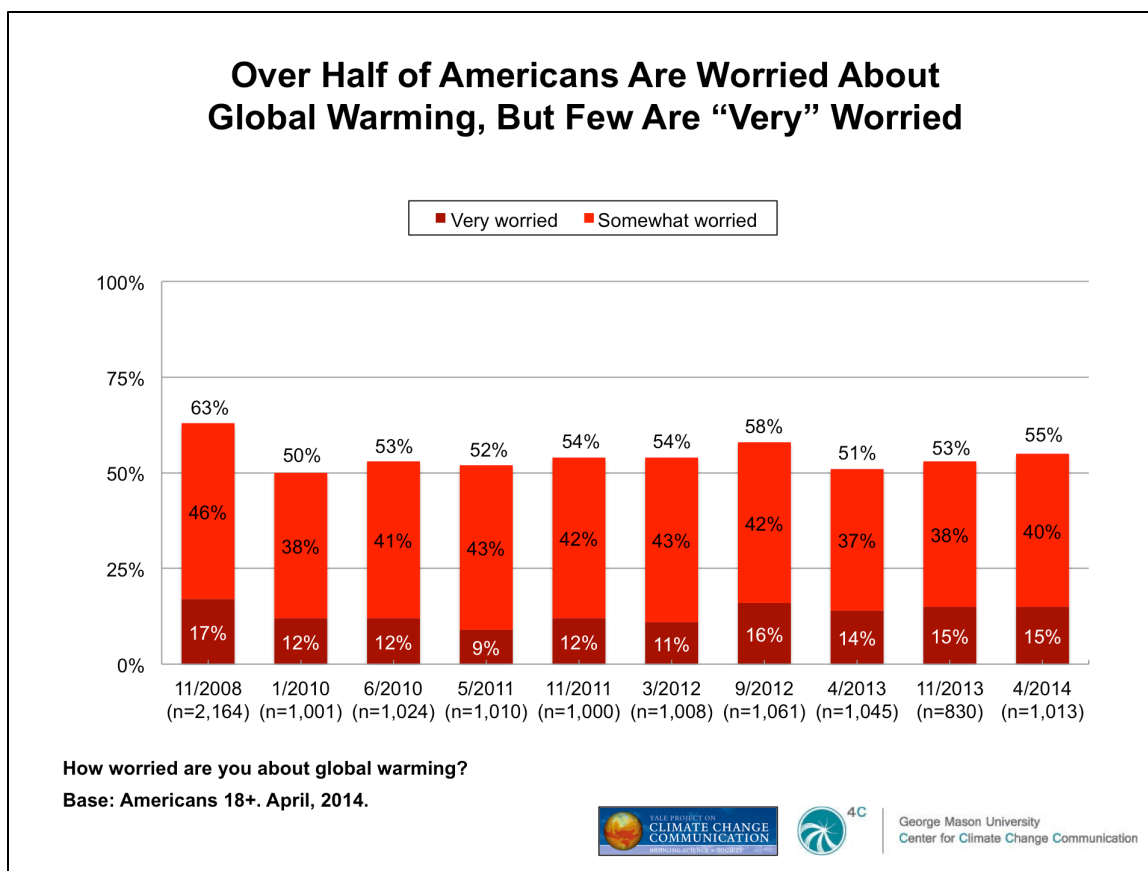
“Residents of some coastal cities see their streets flood more regularly during storms and high tides. Inland cities near large rivers also experience more flooding, especially in the Midwest and Northeast. Insurance rates are rising in some vulnerable locations, and insurance is no longer available in others. Hotter and drier weather and earlier snow melt mean that wildfires in the West start earlier in the spring, last later into the fall, and burn more acreage. In Arctic Alaska, the summer sea ice that once protected the coasts has receded, and autumn storms now cause more erosion, threatening many communities with relocation.”

Yet, only one in three Americans thinks people in the U.S. are being harmed “right now” by global warming in the United States, a number that has waxed and waned slightly over the past several years.



Moreover, just over half of Americans (55%) say they are at least “somewhat worried” about global warming, while only 15% say they are “very worried” about it.

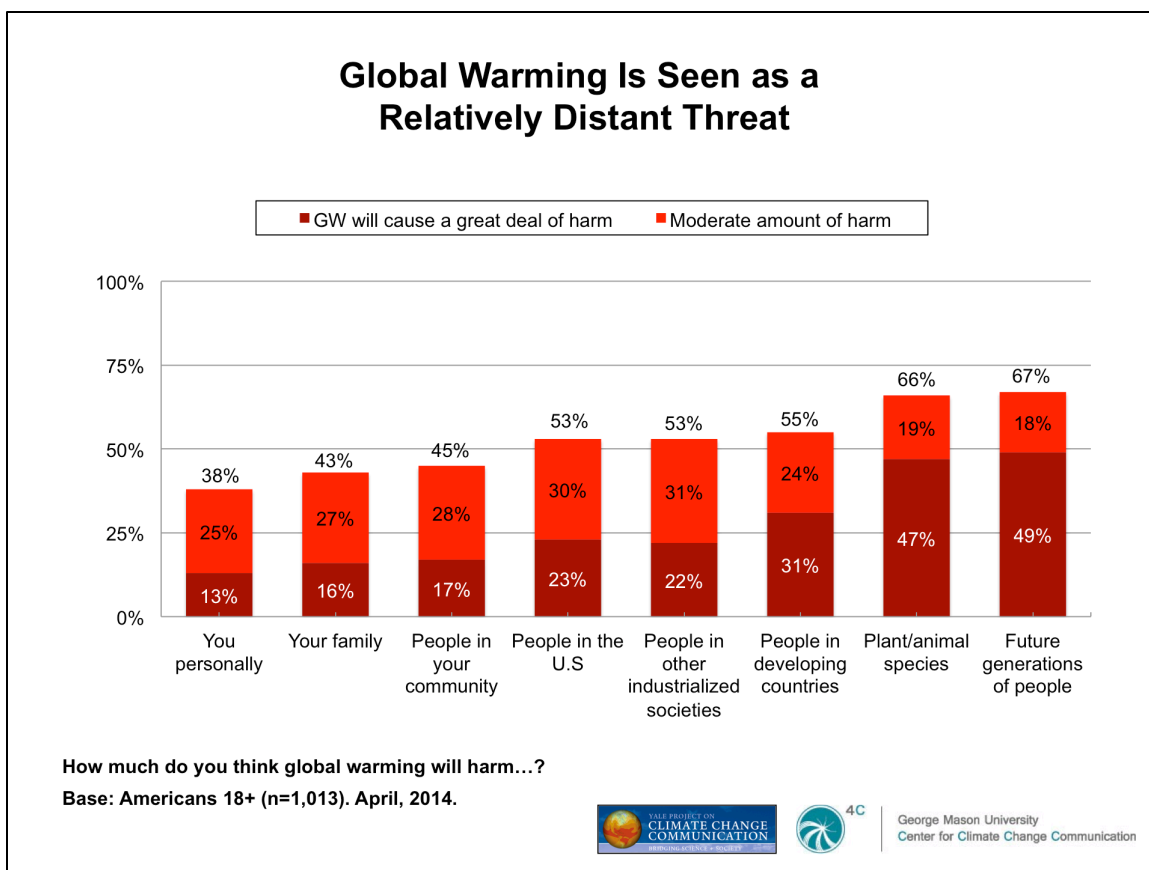
Even as the impacts of global warming have increased over time, public worry about it has remained stable, changing little over the past three years and lower today than in November 2008.



Perhaps one reason why relatively few Americans are “very” worried about global warming is that few think they will be personally harmed by it. Of those Americans who are “very” worried, about eight in ten (78%) think it will cause harm to them *personally*. By contrast, of those who are “somewhat” worried, half (51%) think it will harm them personally. Of those who are “not very” worried, only 18% think global warming will harm them personally, and a mere 3% of those “not at all” worried believe it will harm them personally.

Likewise, while most Americans (67%) believe future generations of people will be harmed “a great deal” or “a moderate amount” by global warming, only a minority believe they personally (38%), their family (43%), or people in their community (45%) will be harmed.

Thus many Americans still perceive global warming as a relatively distant threat.



To what extent will global warming harm future generations of people? Asked to predict how it will affect people 50 years from now, about three in ten say that each year thousands or millions of people around the world will die (31%) and/or become injured or ill (32%) due to global warming.

One in five, however, say global warming will not cause any death (21%) or injury (20%), and a plurality of Americans – about four in ten (38% and 39% respectively) – say they “don’t know.”

Three In Ten Americans Think 50 Years From Now Thousands or Millions of People Worldwide Will Die or Be Harmed From Global Warming

	Due to Global Warming...			
	Currently...		50 Years From Now...	
	Die each year	Become injured or ill	Die each year	Become injured or ill
	%	%	%	%
Number of people...				
No one	28	27	21	20
Hundreds	11	12	9	7
Thousands	16	16	18	16
Millions	2	4	13	16
Don't Know	42	40	38	39
No answer	1	2	1	2

Worldwide, how many people do you think ...

Base: Americans 18+ (n=1,013). April, 2014.

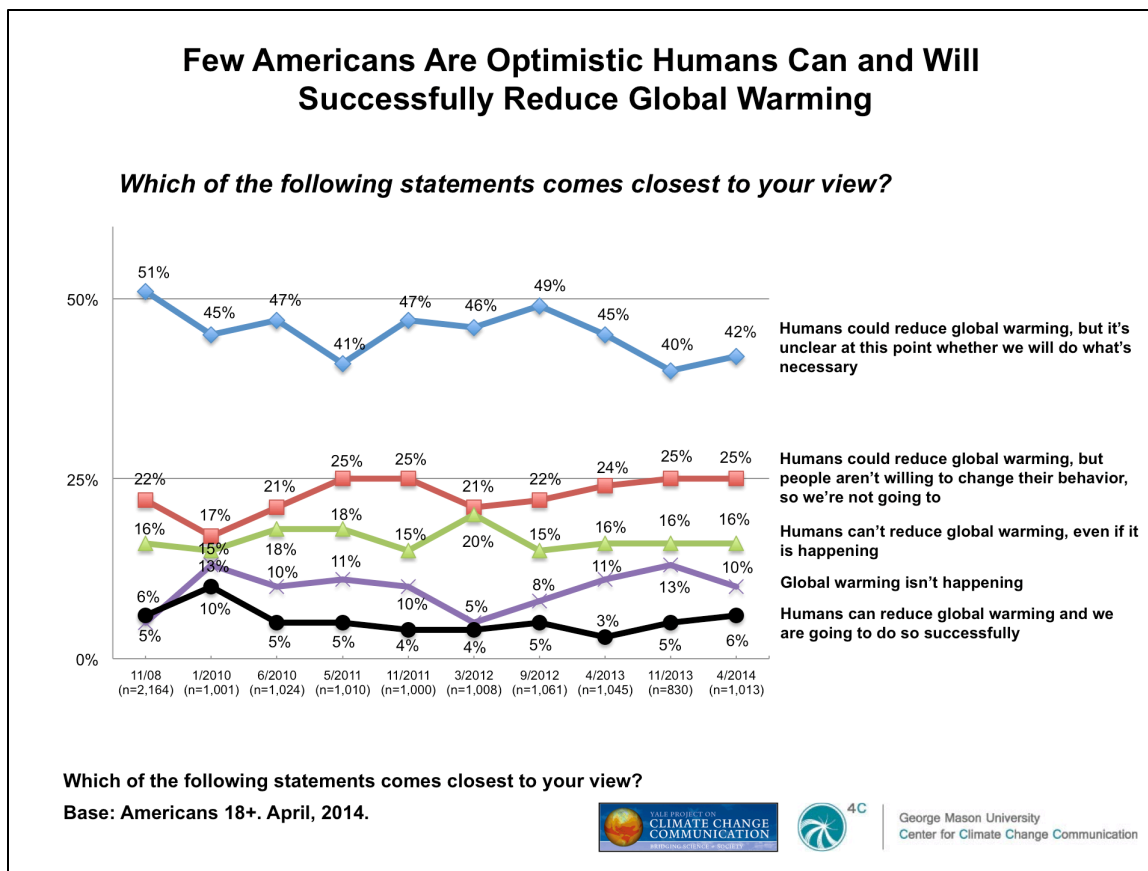


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Regarding the solvability of global warming, the pessimists outnumber the optimists, although the most common view is that it's too soon to say.

Fewer than one in ten Americans (6%) say that "humans can reduce global warming and will do so successfully," while more than four in ten say global warming won't be reduced because people aren't willing to change their behavior (25%) or that it simply can't be reduced even if it is happening (16%).

Finally, more than four in ten (42%) believe humans could reduce global warming, but it is unclear at this point whether we will do what's necessary.

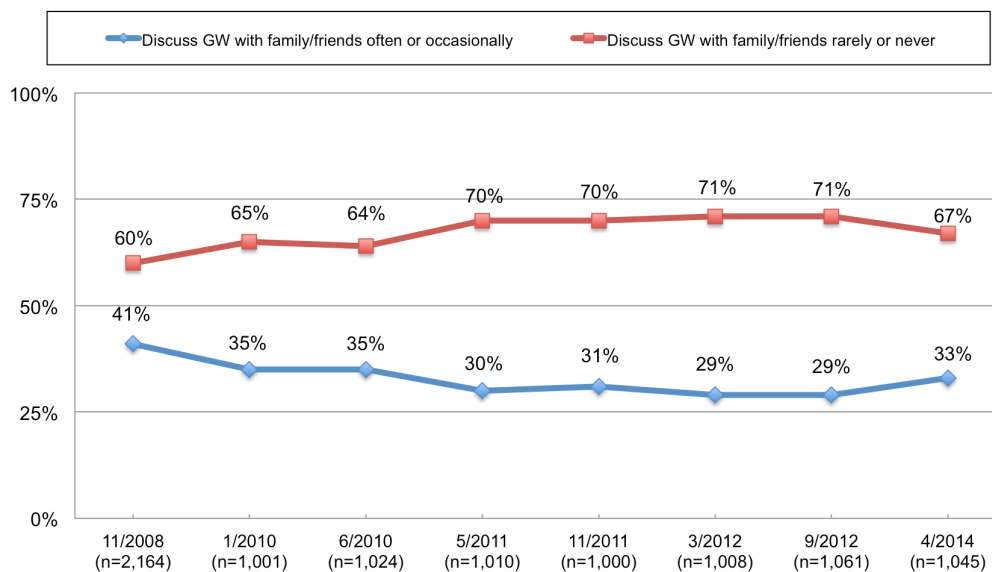


5. Only one in three Americans discusses global warming with family and friends even occasionally.



Global warming is not a common topic of conversation in the U.S., with two in three Americans saying they “rarely” or “never” discuss the topic with family and friends.

Trend: Slightly More Americans Say They “Often” or “Occasionally” Discuss Global Warming With Family and Friends



How often do you discuss global warming with your family and friends?

Base: Americans 18+.



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There is some indication that this lack of discussion stems from perceived disagreement on the issue. Of those Americans who say “none” of their friends share their views on global warming, most never discuss it with friends (77%), while very few say they discuss it occasionally or more often (7%). By contrast, of those Americans who say “all” of their friends share their views on the subject, half discuss it with them often or occasionally (50%), while only one in four say they never discuss it (25%).

How to read the table below: Reading down the left-most column with “all” at the header, we see that, among respondents who say *all* of their friends share their view on global warming, 6% discuss the issue with family and friends often, 44% discuss it occasionally, and so forth. Similarly, in the next column, we see that among respondents who say *most* of their friends share their view on global warming, 8% discuss the issue with family and friends often, 43% discuss it occasionally, and so forth for the rest of the columns.

People Who Do Not Share Views on Global Warming With Family and Friends Are Unlikely to Discuss It With Them

	Number of friends who share respondents' view of global warming				
	All	Most	Some	A few	None
	%	%	%	%	%
Discuss global warming...					
Often	6	8	4	1	1
Occasionally	44	43	37	19	6
Rarely	25	32	41	57	15
Never	25	16	19	24	77

How often do you discuss global warming with your family and friends?

How many of your friends share your views on global warming?

Base: Americans 18+. April, 2014.



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Appendix I: Selected Topline Data

Climate Change Spring 2014 March, 2014

How often do you do the following things?

	Never	Rarely	Some times	Often	Always	Doesn't apply	Refused
In the winter, set the thermostat to 68 degrees or cooler	13%	10%	16%	18%	36%	6%	1%
Use public transportation or car pool	36	21	17	9	6	11	1
Walk or bike instead of drive	34	19	22	10	6	8	1

For each of the actions below, over the next 12 months, would you like to do this more frequently than you are now, less frequently than you are now, or about the same as you are now?

	Less often	About the same	More often	Refused
In the winter, set the thermostat to 68 degrees or cooler	9%	75%	16%	*%
Use public transportation or car pool	17	69	13	*
Walk or bike instead of drive	15	62	22	1

How many light bulbs in your home are energy-efficient compact fluorescent lights (CFLs)?

All	22%
Most	35
Some	18
A few	11
None	7
Doesn't apply	7
Refused	*

[IF HAVE ONLY SOME, A FEW, OR NONE OF THEIR BULBS ARE CFLS, ASK]

Over the next 12 months, how likely are you to change most of the light bulbs in your home to energy efficient compact fluorescent lights (CFLs)?

Yes, I'd like to and probably will	26%
Yes, I'd like to but probably won't	25
No, I don't want to	24
I don't know	25
Refused	*

On a scale from -3 (very bad) to +3 (very good), do you think global warming is a bad thing or a good thing?

Very bad -3	-2	-1	+1	+2	Very good +3	Never heard of global warming	Refused
35%	19%	20%	17%	3%	4%	1%	1%

[OPEN END]

When you think of "global warming," what is the first word or phrase that comes to your mind?

[ASK ALL WHO ANSWERED PREVIOUS QUESTION]

Please help us to understand what that word or phrase means to you. You said: [INSERT TEXT RESPONSE FROM PREVIOUS QUESTION.]

On a scale from -3 (very bad) to +3 (very good), do you think that this is a bad thing or a good thing?

Very bad -3	-2	-1	+1	+2	Very good +3	Never heard of global warming	Refused
50%	17%	13%	10%	4%	6%	2%	*%

Recently, you may have noticed that *global warming* has been getting some attention in the news. Global warming refers to the idea that the world's average temperature has been increasing over the past 150 years, may be increasing more in the future, and that the world's climate may change as a result.

What do you think: Do you think that global warming is happening?

Yes	64%
No	19
Don't know	17
Refused	*

[ASK IF THINK GLOBAL WARMING IS HAPPENING]

How sure are you that global warming is happening?

Not at all sure	5%
Somewhat sure	33
Very sure	32
Extremely sure	30

[ASK IF THINK GLOBAL WARMING IS NOT HAPPENING]

How sure are you that global warming is not happening?

Not at all sure	12%
Somewhat sure	47
Very sure	26
Extremely sure	15

Assuming global warming is happening, do you think it is...

Caused mostly by human activities	52%
Caused mostly by natural changes in the environment	32
Other (Please specify)	8
None of the above because global warming isn't happening	8
Refused	1

[ASK ALL WHO ARE NOT VERY/EXTREMELY SURE GLOBAL WARMING IS NOT HAPPENING AND WHO ANSWERED THE QUESTIONS]

Thinking about the energy saving actions you're already taking and those you'd like to take over the next 12 months: If you did most of these things, how much do you think it would reduce your personal contribution to global warming?

Not at all	20%
A little	47
Some	27
A lot	6
Refused	*

[ASK ALL WHO ARE NOT VERY/EXTREMELY SURE GLOBAL WARMING IS NOT HAPPENING AND WHO ANSWERED THE QUESTIONS]

If most people in the United States did these same actions, how much would it reduce global warming?

Not at all	12%
A little	28
Some	38
A lot	22
Refused	1

[ASK ALL WHO ARE NOT VERY/EXTREMELY SURE GLOBAL WARMING IS NOT HAPPENING AND WHO ANSWERED THE QUESTIONS]

If most people in the modern industrialized countries around the world did these same actions, how much would it reduce global warming?

Not at all	8%
A little	22
Some	29
A lot	40
Refused	*

Which comes closest to your own view?

Most scientists think global warming is happening	40%
There is a lot of disagreement among scientists about whether or not global warming is happening	32
Most scientists think global warming is not happening	5
Don't know enough to say	23
Refused	*

[SLIDER; RANGE: 0% TO 100%]

To the best of your knowledge, what percentage of climate scientists think that human-caused global warming is happening?

Please click on the slider bar below to indicate your answer. You can slide the indicator to the position that best describes your opinion. If the indicator does not work, you can enter a number in the number box.

[RESPONDENTS SEE A SLIDER BAR – ON THE LEFT IS 0% (None), IN THE MIDDLE IS 50% (Half), AND ON THE RIGHT IS 100% (All). RESPONDENTS MOVE THE SLIDER TO INDICATE THEIR ANSWER.]	
Mean (% climate scientists)	62%
Median (% climate scientists)	63
Don't know enough to say (% respondents)	28

How worried are you about global warming?

Not at all worried	18%
Not very worried	27
Somewhat worried	41
Very worried	15
Refused	*

How much do you think global warming will harm:

	Not at all	Only a little	A Moderate amount	A great deal	Don't know	Refused
You personally	25%	26%	25%	13%	11%	1%
Your family	21	24	27	16	11	1
People In your community	20	24	28	17	11	1
People in the United States	18	18	30	23	10	1
People in modern industrialized countries	16	19	31	22	11	1
People in developing countries	16	17	24	31	12	1
Future generations of people	12	10	18	49	11	1
Plant and animal species	12	12	19	47	10	1

x87. When do you think global warming will start to harm people in the United States?

They are being harmed right now	32%
In 10 years	9
In 25 years	14
In 50 years	15
In 100 years	14
Never	16
Refused	1

Worldwide, how many people do you think...

	None	Hundreds	Thousands	Millions	Don't know	Refused
Currently die each year due to global warming	28%	11%	16%	2%	42%	1%
Are currently injured or become ill each year due to global warming	27	12	16	4	40	2
Will die each year 50 years from now due to global warming	21	9	18	13	38	1
Will be injured or become ill each year 50 years from now due to global warming	20	7	16	16	39	2

Worldwide over the next 20 years, do you think global warming will cause more or less of the following *if nothing is done to address it*?

	Many less	A few less	No difference	A few more	Many more	Don't Know	Refused
Intense hurricanes	2%	2%	19%	21%	35%	19%	1%
Extinction of plant and animal species	2	2	21	22	35	17	1
Famines and food shortages	2	2	20	22	35	17	1
Droughts and water shortages	2	2	17	22	40	15	1
People living in poverty	2	2	28	18	28	21	1
Refugees	2	2	25	20	24	26	1
Severe heat waves	1	2	17	22	41	15	1
Forest fires	2	2	20	21	38	16	1
Disease epidemics	2	1	25	22	24	24	1
Floods	2	3	20	22	36	17	1
Expanding deserts	2	2	20	25	30	20	1
Melting ice caps and glaciers	2	2	15	22	45	13	1

How much had you thought about global warming before today?

Not at all	15%
A little	34
Some	35
A lot	16
Refused	*

How important is the issue of global warming to you personally?

Not at all important	16%
Not too important	21
Somewhat important	38
Very important	17
Extremely important	8
Refused	1

On some issues, people feel that they have all the information they need in order to form a firm opinion, while on other issues they would like more information before making up their mind. For global warming, where would you place yourself?

I do not need any more information	31%
I need a little more information	25
I need some more information	25
I need a lot more information	19
Refused	*

How much do you agree or disagree with the following statements?

	Strongly disagree	Some what disagree	Some what agree	Strongly agree	Refused
I could easily change my mind about global warming	33%	34%	29%	4%	1%
The actions of a single individual won't make any difference in global warming	17	34	32	16	1
I have personally experienced the effects of global warming	35	29	29	5	1
New technologies can solve global warming without individuals having to make big changes in their lives	27	39	29	4	1

How often do you discuss global warming with your family and friends?

Never	29%
Rarely	39
Occasionally	28
Often	4
Refused	*

How many of your friends share your views on global warming?

None	16%
A few	28
Some	28
Most	24
All	3
Refused	1

Which of the following statements comes closest to your view?

Global warming isn't happening	10%
Humans can't reduce global warming, even if it is happening	16
Humans could reduce global warming, but people aren't willing to change their behavior, so we're not going to	25
Humans could reduce global warming, but it's unclear at this point whether we will do what's needed	42
Humans can reduce global warming, and we are going to do so successfully	6
Refused	1

Over the past 12 months, how many times have you done these things?

[RANDOMIZE]	Never	Once	A few times (2-3)	Several times (4-5)	Many times (6+)	Don't know	Refused
Rewarded companies that are taking steps to reduce global warming by buying their products	50%	2%	13%	9%	7%	19%	1%
Punished companies that are opposing steps to reduce global warming by NOT buying their products	54	4	10	6	7	19	1

Over the next 12 months, would you like to punish companies that are opposing steps to reduce global warming by NOT buying their products...

More frequently than you are now?	35%
Less frequently than you are now?	10
About the same as you are now?	54
Refused	1

Over the next 12 months, do you intend to buy the products of companies that are taking steps to reduce global warming...

More frequently than you are now?	34%
Less frequently than you are now?	10
About the same as you are now?	54
Refused	3

Which statement below best reflects your view?

Global warming is affecting weather in the United States	57%
Global warming is not affecting weather in the United States	8
Global warming isn't happening	10
Don't know	19
Prefer not to answer	5
Refused	1

[ASK IF SAY GLOBAL WARMING IS AFFECTING WEATHER IN THE UNITED STATES]
How much do you think global warming is affecting weather in the United States?

A lot	39%
Some	43
A little	15
Don't know	2
Refused	1

Which statement do you agree with more?

I consider myself an environmentalist	32%
I do not consider myself an environmentalist	41
Don't know	27
Refused	1

Appendix II: Survey Method

The data in this report are based on a nationally representative survey of 1,013 American adults, aged 18 and older, conducted from April 11-21, 2014. All questionnaires were self-administered by respondents in a web-based environment. The survey took, on average, about 32 minutes to complete.

The sample was drawn from GfK's KnowledgePanel®, an online panel of members drawn using probability sampling methods. Prospective members are recruited using a combination of random digit dial and address-based sampling techniques that cover virtually all (non-institutional) resident phone numbers and addresses in the United States. Those contacted who would choose to join the panel but do not have access to the Internet are loaned computers and given Internet access so they may participate.

The sample therefore includes a representative cross-section of American adults – irrespective of whether they have Internet access, use only a cell phone, etc. Key demographic variables were weighted, post survey, to match US Census Bureau norms.

The survey instrument was designed by Anthony Leiserowitz, Geoff Feinberg, and Seth Rosenthal of Yale University, and Edward Maibach and Connie Roser-Renouf of George Mason University.

Margins of error

All samples are subject to some degree of sampling error—that is, statistical results obtained from a sample can be expected to differ somewhat from results that would be obtained if every member of the target population was interviewed. Average margins of error, at the 95% confidence level, are as follows:

- April 2014: Fielded April 11-21, 2014 with 1,013 American adults. The margin of sampling error is plus or minus 3 percentage points.
- November 2013: Fielded November 23 through December 9 with 830 American adults. The margin of sampling error is plus or minus 3 percentage points.
- April 2013: Fielded April 8-15 with 1,045 American adults. The margin of sampling error is plus or minus 3 percentage points.
- September 2012: Fielded August 31 through September 12, 2012 with 1,061 American adults. The margin of sampling error is plus or minus 3 percentage points.
- March 2012: Fielded March 12 through March 30, 2012 with 1,008 American adults. The margin of sampling error is plus or minus 3 points.
- November 2011: Fielded October 20 through November 16 with 1,000 American adults. The margin of sampling error is plus or minus 3 points.
- May 2011: Fielded April 23 through May 12 with 1,010 American adults. The margin of sampling error is plus or minus 3 points.
- June 2010: Fielded May 14 through June 1 with 1,024 American adults. The margin of sampling error is plus or minus 3 points.
- January 2010: Fielded December 24, 2009 through January 3, 2010 with 1,001 American adults. The margin of sampling error is plus or minus 3 points.
- November 2008: Fielded October 7 through November 12 with 2,164 American adults. Data were collected in two waves: wave 1 from October 7 through October 20 and wave 2 from October 24 through November 12. The margin of sampling error is plus or minus 2 points.

Rounding error

For tabulation purposes, percentage points are rounded off to the nearest whole number. As a result, percentages in a given chart may total slightly higher or lower than 100%.

Appendix III: Sample Demographics

	N (unweighted) 1,013	% (weighted) 100
Total		
Sex		
Men	496	48
Women	517	52
Age		
Generation Y (18-30)	164	23
Generation X (31-48)	251	29
Baby Boomers (49-67)	431	36
WWII (68+)	167	12
Education		
Less than high school	77	12
High school graduate	231	30
Some college/tech	331	29
College graduate	227	18
Post graduate	147	11
Household Income		
<\$25K	179	18
\$25K - <\$50K	221	23
\$50K - <\$75K	192	18
\$75K - <\$100K	144	15
\$100K - <\$125K	131	13
\$125K+	146	13
Hispanic		
Yes	92	15
Race/Ethnicity		
White, non-Hispanic	751	66
Black, African-American non-Hispanic	102	12
Other non-Hispanic	68	7
Region		
Northeast	176	18
Midwest	254	22
South	350	37
West	233	23

