

# Looking for Leadership:

*Public Opinion in Massachusetts  
on the Response to Global Warming*



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MARCH 2015

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## I. KEY FINDINGS

- Two-thirds of Massachusetts residents (65 percent) believe global warming is real and caused, at least in part, by human activities. Three-quarters of Massachusetts residents anticipate serious problems from more powerful storms (74 percent), coastal flooding (72 percent), and sea level rise (72 percent).
- Support for efforts to reduce greenhouse gas emissions has grown slightly—41 percent of residents now call climate change a high policy priority, up from 32 percent in 2011. But interest in climate protection is still far lower than other major policy issues such as economic development, education, and health care.
- The share of residents who believe taking steps to reduce global warming is smart economic development policy has fallen over the past four years; 39 percent now think fighting global warming will help the state's economy, down from 53 percent in 2011. However, only one in four (24 percent) residents think state action to protect the climate will harm the Massachusetts economy.
- Large majorities favor renewable sources for new power generation. Solar (73 percent), land-based wind (64 percent), and off-shore wind (63 percent) are the most popular options. Nearly three-quarters (72 percent) of Massachusetts residents say they are willing to pay an extra \$5 per month on their utility bills for renewable power that significantly reduces greenhouse gas emissions.
- Large majorities support government and business taking action to address climate change. Majorities “strongly support” stricter energy efficiency standards for new buildings (65 percent) and updating the electric grid (63 percent). Majorities are also strongly in favor of actions that would require public funding, such as investing in public transportation to reduce car trips and increasing incentives for renewable energy (55 percent each).
- Residents also see the need to adapt to climate change. Nearly two-thirds (65 percent) strongly support hardening critical infrastructure against flooding. Nine in ten (91 percent) at least somewhat support taking this step.
- Some policies receive less support. These include a carbon tax (26 percent strongly support), changes to zoning to encourage smart growth (37 percent strongly support), and offering tax incentives to drivers who purchase electric vehicles (38 percent strongly support). But even these less popular items are at least somewhat supported by a majority of residents.
- Belief in climate change appears to spur the intention to save energy but does not move people to action. For example, more than a third (36 percent) of believers in man-made warming say they would be very likely to take alternative transportation, compared to less than a quarter (23 percent) of all others; among both groups, less than a fifth are actually engaging in that behavior now.

## II. INTRODUCTION

In 2008, Massachusetts enacted the Global Warming Solutions Act (GWSA), an ambitious plan to reduce the Commonwealth's greenhouse gas emissions by 80 percent by the year 2050. Under the Patrick administration, substantial progress was made toward meeting the interim goal of a 25 percent reduction by 2020. While emissions have fallen across a number of sectors, some experts believe more must be done to hit the 2020 target. And reaching the challenging 2050 goal will demand even more significant action in the near term.<sup>1</sup>

### CLIMATE CHANGE IS NOT MASSACHUSETTS RESIDENTS' HIGHEST PRIORITY, BUT THEY STILL WANT GOVERNMENT TO RESPOND.

To assess public support for the policies required to live up to the state's commitments for greenhouse gas reduction, MassINC conducted a survey of 1,004 Massachusetts residents. Results from the poll show residents support a strong response to global warming. Climate change is not their highest priority, but the public still wants government to respond. Large majorities support a range of possible policy interventions, including some that would require significant public funding and higher monthly energy bills.

But personal action to reduce personal carbon footprints is less robust, and there appears to be no link between belief in warming and taking such action. Crafting policies to appeal to other motives could have the effect of reducing carbon emissions. So too would government action to speed the adoption of new renewable technologies like solar panels and electric vehicles.

These findings are consistent with results from a 2011 MassINC survey. They are also broadly in line with recent national polling on climate change. Most Americans believe global warming is happening and that human activity is at least partially to blame. Increasingly, they think that the effects of climate change are being felt now or will be felt in the near future. And they support recent moves by the Obama administration to regulate greenhouse gases, even if they make energy more expensive. Still, compared to other issues, climate change remains a low priority for most Americans.

This report is framed around three broad components of responding to climate change, first outlined in the report on the 2011 survey: 1) building recognition of global warming as a problem and priority; 2) establishing support for policy efforts to reduce greenhouse gas emissions; and 3) encouraging action to bring down personal greenhouse gas emissions (Table 1).



**Table 1:**

**Creating a Culture of Climate Protection**

In 2011, MassINC released *The 80% Challenge: A Survey of Climate Change Opinion and Action in Massachusetts*. The major conclusion of this public opinion research study was the need for Massachusetts to develop a “culture of climate protection.” An extensive literature review identified three major components of such a culture, shown below. While progress has been made building support for policy, the two other components show little movement, either here or nationally.

ESTABLISHING GLOBAL WARMING AS A HIGH POLICY PRIORITY	BUILDING SUPPORT FOR POLICY EFFORTS TO CURB GLOBAL WARMING	ACTING AS INDIVIDUALS TO BRING DOWN PERSONAL GREENHOUSE GAS EMISSIONS
<p>Both in Massachusetts and nationally, global warming is simply not among the higher tier of policy priorities. A variety of polls by MassINC and others confirm the low priority assigned to global warming. This is despite widespread belief that warming is happening and serious concern about the current and future impacts of global warming, which Massachusetts residents perceive with considerable alarm.</p> <p><b>41 percent</b> view climate change as a high policy priority (up from 32 percent in 2011)</p> <p>Ranked <b>fifth out of six</b> policy priorities tested in this poll</p> <p>Ranked <b>eight out of nine</b> priorities in a statewide survey in 2013</p> <p>Ranked <b>19th out of 20</b> policy priorities in a 2014 Pew national survey</p>	<p>Residents are open to a variety of policy priorities, even if they result in higher energy costs. While not all ideas are popular, most receive moderate to strong levels of support. Residents appear open to political leaders taking steps to combat climate change, even though it is neither a high priority nor an obvious economic winner.</p> <p><b>85 percent</b> support tighter energy efficiency standards for new buildings</p> <p><b>89 percent</b> support improving the state’s public transportation to reduce car travel</p> <p><b>85 percent</b> support incentives for individuals and businesses to generate their own renewable energy</p> <p><b>39 percent</b> think fighting global warming will help the state’s economy (down from 53 percent in 2011)</p>	<p>Research indicates changing personal behavior is one important component of reducing carbon emissions. The resulting savings are the same, no matter the motivation. This is helpful, because while residents are taking carbon-reducing steps, there is no evidence this behavior is connected to global warming. Those concerned over global warming are no more or less likely to take action than skeptics.</p> <p><b>22 percent</b> have already had an energy audit and made their homes more efficient</p> <p><b>19 percent</b> already walk, bike, or take transit for some trips</p> <p><b>51 percent</b> say they would be likely to install solar panels on their homes</p> <p><b>41 percent</b> say they would be likely to buy an electric vehicle</p>

### III. RECOGNITION OF GLOBAL WARMING AS A PROBLEM AND PRIORITY

Most Massachusetts residents recognize that global warming is a real problem that results from human activity. Most think the climate has already begun to change, and they foresee major potential consequences either already underway or within a short timeframe. The contradiction is that relatively few see global warming as a high priority for state government, especially when compared to other issues.

#### A. Overall, belief in global warming has held steady since 2011.

Two-thirds of Massachusetts residents accept the scientific consensus that the earth is warming as a direct result of human activity (Figure 1). The rest either believe climate change is caused mostly by environmental factors (12 percent), or they do not think that warming is occurring at all (17 percent). These figures are changed little from the 2011 survey and from a separate poll MassINC Polling conducted in January of 2012. The main variation is between those who think global warming is mostly naturally occurring

and those who think it is caused by both human and natural factors. The large plurality who think it is mostly man-made is virtually unchanged.

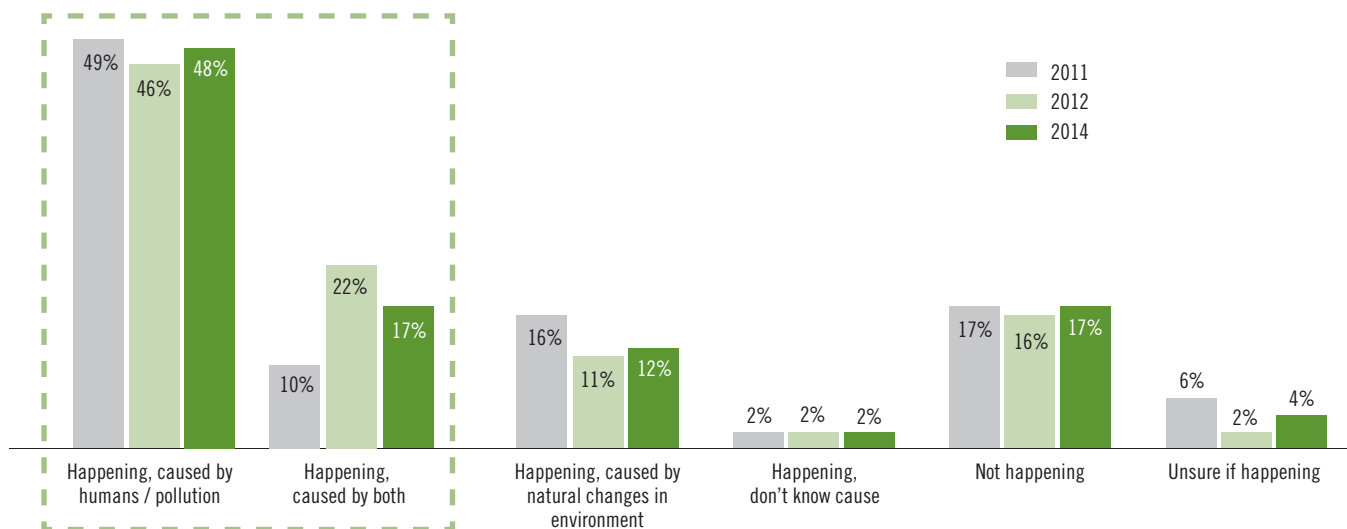
Residents who believe global warming is happening are more firm in their opinion than those who doubt it. Nearly two-thirds (63 percent) of warming believers are extremely or very sure that warming is happening; among those who think global warming is not occurring, only 42 percent have this same level of certainty.

Massachusetts residents believe in warming as much or more than Americans overall, depending on the comparison survey. The latest national survey by the Woods Institute at Stanford University, from 2013, found that 82 percent of Americans believe global warming is happening regardless of cause, compared to 79 percent of Massachusetts residents in this survey.<sup>2</sup> Other national surveys in 2014 found slightly smaller majorities overall believe that global warming is at least partially man-made.<sup>3</sup>

Opinion on global warming breaks along distinct demographic lines (Table 2). Consistent with

Figure 1:

Two-thirds think global warming is real and at least partially man-made



**Table 2:**

**Belief in global warming by demographics**

	REAL, CAUSED ALL / PARTLY BY HUMANS / POLLUTION	STARTED OR WILL WITHIN A FEW YEARS	HIGH LEGISLATIVE PRIORITY
18 to 29	77%	67%	43%
Democrat	77%	72%	58%
Less than \$25k	73%	61%	58%
Advanced degree	73%	73%	42%
Non-white	72%	63%	52%
College graduate (BA/BS)	71%	69%	45%
Boston / Inner Suburbs	71%	66%	46%
30 to 44	70%	68%	45%
Female	70%	66%	43%
Less than \$75k	66%	61%	45%
Some college, no degree	65%	62%	42%
More than \$150k	65%	61%	36%
More than \$75k	65%	61%	35%
\$75k-\$150k	65%	61%	35%
<b>Overall</b>	<b>65%</b>	<b>61%</b>	<b>41%</b>
Southeast MA	64%	57%	44%
White / Caucasian	63%	61%	38%
Western / Central MA	63%	65%	43%
\$25k-\$75k	62%	61%	39%
Outer Boston Suburbs	62%	55%	35%
Male	59%	55%	39%
Independent / other	59%	58%	34%
45 to 59	58%	54%	36%
High School or less	58%	53%	38%
60+	55%	57%	42%
Republican	46%	43%	13%

the 2011 survey, there is a generational divide. Residents under the age of 45 are far more likely than their elders to think that human-caused global warming is happening. Older cohorts are also 10 points more likely to think warming is not

happening at all. As in 2011, non-white residents are once again among the most concerned about global warming (see textbox for more). Those with a college degree or more education believe in global warming more than the average. These

groups are also much more likely to believe that warming is caused by human activity, either alone or in connection with natural phenomena.

These demographic groups all tend to identify as Democrats, and indeed, there is a partisan divide on the issue. Fully 90 percent of Democrats believe in global warming, compared to only 61 percent of Republicans. Republicans are also much more split over the causes than are Democrats, with more saying global warming is caused by natural processes. Political independents are in the middle but somewhat closer to Republicans: 72 percent think warming is happening, lower than the overall figure for the survey.

These partisan and demographic divides are also reflected in the regional differences on belief in warming. Boston and its Inner Suburbs make up the most reliably Democratic region of the state, and the most racially diverse. Seven in ten residents in this area believe warming is happening and caused, at least in part, by humans. This is considerably higher than belief in the other three regions of the Commonwealth.

These partisan and demographic splits are consistent with national surveys on global warming. The Pew Research Center found a 42-point gap between Democrats (79 percent) and Republicans (37 percent) as to whether there is “solid evidence that the earth has been warming.”<sup>4</sup> An AP-NORC survey found a 34-point partisan split, as well as a 10-point gap between the 18-29 age bracket and those 60 years or older.<sup>5</sup> And Yale University found that younger and minority voters were 10 points more likely to support a candidate who was in favor of action on climate change than older voters and white voters.<sup>6</sup>

### *B. Residents think warming is already occurring.*

Most Massachusetts residents do not see global warming as an abstract, future problem but as something that is happening right now (Figure 2). Only a quarter think it will either never happen or will be delayed until future generations. A majority (61 percent) say warming has already begun to happen, and another 14 percent expect to see

#### **MINORITY RESIDENTS ARE MOST CONCERNED ABOUT GLOBAL WARMING**

One of the more surprising findings of the 2011 survey was that non-white residents are significantly more concerned about global warming than whites. In 2011, African-American and Latino residents were more likely to believe in man-made warming and see it as a serious problem for the state. That same patterns holds in this survey.

Both minority groups are more likely to believe that global warming is real and caused mostly by humans. A majority of each group consider warming to be a high priority for state government. They are also more concerned than white residents about environmental impacts like drought, heat, and more powerful storms, and they are more likely to think that lower-income residents will bear the brunt of climate change. Non-white residents are also more optimistic that climate change can be stopped, and they are slightly more supportive of policy interventions to fight and prepare for climate change. They are also more likely to say they would take personal action to reduce climate change.

These findings are consistent with recent national polling. Pew’s 2014 national priorities report found that non-white voters were more than 20 points more likely to consider climate change a top priority for the president and Congress.<sup>7</sup>

the effects within their lifetime. The same demographics that are more likely to believe global warming is happening—younger residents, non-white residents and Democrats—are also more likely to think that warming has already begun. And there are regional differences. Two-thirds in Boston and the Inner Suburbs (66 percent) and Western and Central Massachusetts (65 percent) think warming has already begun or will within a few years, compared to slightly more than half in the Outer Boston Suburbs (55 percent) and Southeast Massachusetts (57 percent).

These figures, like the ones on belief in warming, are very consistent with the 2011 MassINC survey. Then, 54 percent thought warming had already begun to happen, 4 percent thought it would begin in a few years, and 10 percent thought it would start during their lifetimes. They also match very closely with national figures. A national survey by Gallup from March of this year found that 54 percent thought the effects of warming had already begun.<sup>8</sup>

Perhaps because residents think global warming has begun, they are somewhat split as to whether they believe it can be stopped. A plurality (46 percent) think it can, but a third (33 percent) feel that it is already too late. If this second group grows in size, it may complicate efforts to reduce emissions in the years ahead as a sense of resignation takes hold.

### C. Most residents expect global warming will have harmful impacts.

Studies suggest the impacts of global warming could be pronounced in coastal areas of Massachusetts. Sea level rise threatens large swaths of Boston and Cambridge. Coastal erosion and powerful storm activity are already affecting smaller coastal communities. This poll suggests residents are aware of these issues, as well as the potential for worsening damage, as the impacts of global warming continue to accumulate.

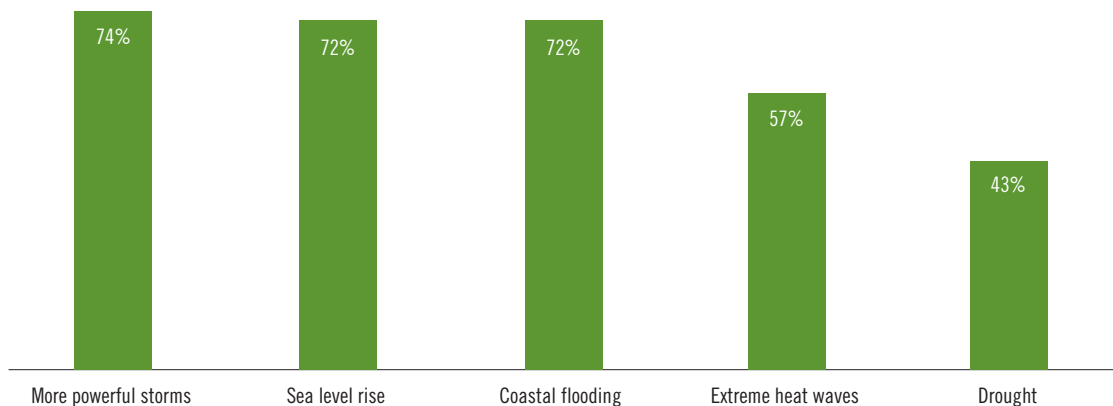
Nearly three-quarters anticipate coastal flooding (72 percent), sea level rise (72 percent), and more powerful storms (74 percent) as a result of global warming (Figure 2). A smaller majority of residents think Massachusetts will experience extreme heat waves (57 percent). Only 43 percent foresee drought in the Commonwealth.

Black and Latino residents are significantly more concerned about drought, heat and storms than white residents, consistent with their elevated concern about a range of issues on this topic. While national reports have argued that lower-income residents and communities of color will be especially vulnerable to the impacts of climate change, there is little evidence that this research is widely known.<sup>9</sup> A majority (65 percent) think the impacts will be felt equally across

Figure 2:

#### Residents foresee serious impacts from global warming

Which of the following do you think Massachusetts is likely to experience as a result of global warming?



the income spectrum. Only a fifth (22 percent) believe low-income residents will be the hardest hit. That opinion is held by only slightly more non-white residents, and there is very little difference among income brackets.

*D. More residents view global warming as a high priority, but it remains a second-tier issue.*

Four in ten (41 percent) Massachusetts residents say global warming should be a high priority for state government. This is a significant improvement over 2011, when only one-third (32 percent) of residents considered it a high priority (Figure 3). Still, that figure places global warming near the bottom of the list of issues tested, between taxes (49 percent) and the state’s transportation system (39 percent).

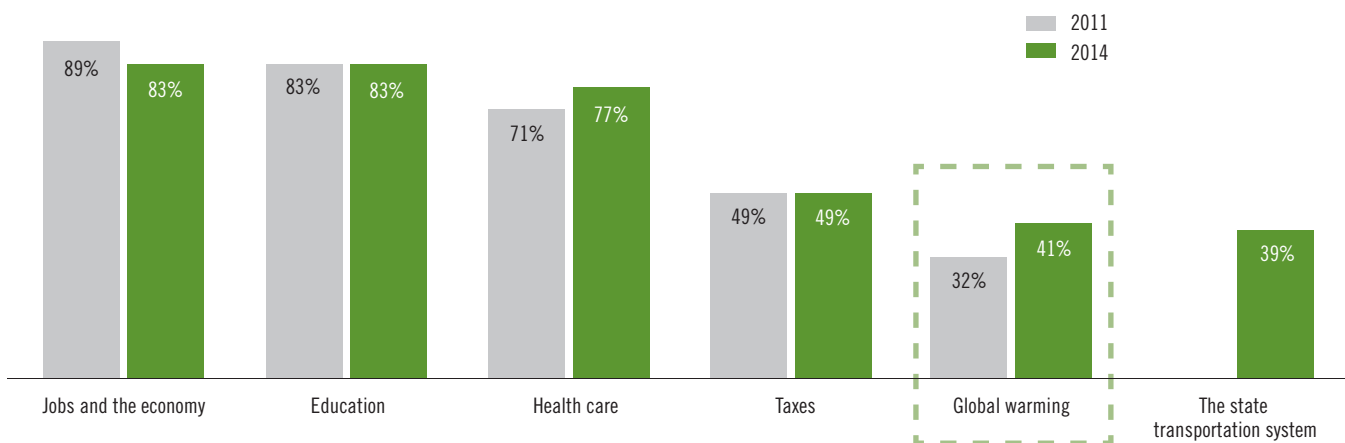
The relative lack of importance of global warming in Massachusetts residents’ minds is not unique to this survey. Poll after poll has shown voters and residents consider it far less important than other issues. A 2013 WBUR survey of likely voters in the U.S. Senate special election showed global warming near the bottom of the list of voters’ priorities. A 2014 Gallup poll showed climate

change ranked 14 out of 15 national problems in terms of voter worries.<sup>10</sup> Respondents to a 2014 Pew poll ranked global warming 19th out of 20 policy priorities, with just 29 percent calling it a top priority. This low level of priority was little changed from previous polls in 2009 and 2013.<sup>11</sup> Pew also found that Americans were among the least concerned about climate change in an international survey of 39 nations.<sup>12</sup> Global warming even fares poorly when compared to other environmental issues. In a 2014 AP-NORC survey, respondents ranked climate change 13th most serious out of 15 environmental problems.<sup>13</sup>

*E. Fewer residents see a positive link between responding to global warming and growing the Massachusetts economy.*

One concern about fighting global warming in the recent past has been the potential economic consequences of various policy interventions. For example, some methods of reducing emissions may be seen by some as hurting economic activity. On the other hand, clean energy also provides the prospect of new jobs retrofitting existing buildings, updating the power grid, and bringing new technologies into production. A

**Figure 3:**  
**Global warming still considered a second-tier issue**  
 Percent saying issue should be “high priority” for state government



key political question has been which of these two ideas is more resonant with voters.

A majority (53 percent) in the 2011 survey saw potential economic benefit from fighting global warming (Figure 4). This time around, the public belief in the connection between those two concepts has declined somewhat, to 39 percent. Still, only a quarter of residents see economic harm coming out of fighting global warming, and there is no demographic group in the poll among whom a majority anticipate economic harm. Even among Republicans, just 34 percent think fighting global warming would hurt the economy. Thirty-eight percent anticipate no effect, and 21 percent think it would help.

As with other elements of global warming, younger people are most sanguine about the benefits of taking the issue on directly, while older people are more likely to see no effect. Democrats (52 percent), women (46 percent), and residents with advanced degrees (53 percent) are the most likely to see economic gain from fighting global warming.

The diminished link between the global warming and the economy could have political ramifications. Politics, in Massachusetts and

nationally, has revolved around the economy since the financial collapse of 2008. Candidates have linked every issue to improved economic outcomes rather than try to pull voters' attention away from their economic challenges.

Even so, residents are willing to give some latitude to political leaders looking to tackle the issue. Global warming may not be a surefire election winner, but it is certainly not a loser. Thirty-nine percent say they would be more likely to

### HERE, AS NATIONALLY, CLIMATE CHANGE REMAINS A SECOND-TIER ISSUE.

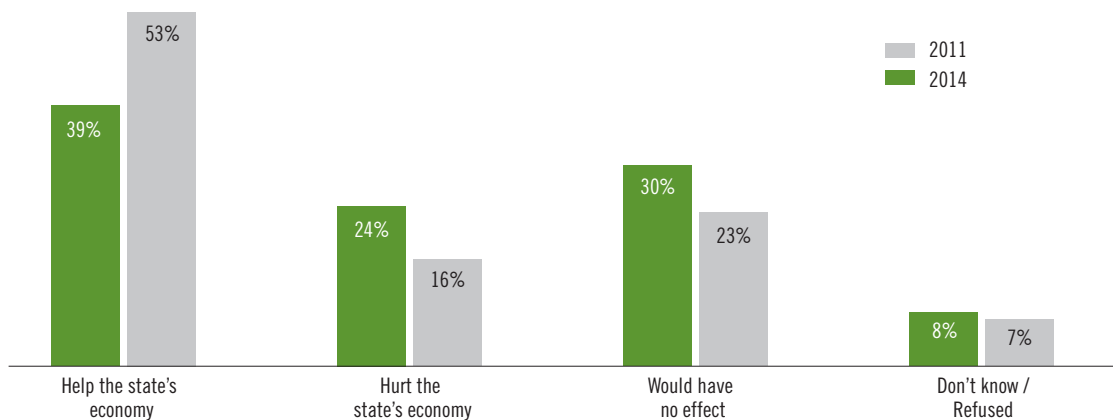
vote for a candidate for governor who supports aggressive steps to combat global warming. Another 44 percent said such a stance would make no difference in their vote. Only 12 percent said it would make them less likely to support that candidate.

This is a question where Massachusetts lags the nation slightly. A Bloomberg poll from June 2014 found that half (51 percent) of Americans say a candidate's support for government action on climate change would make them more likely to vote for him or her.<sup>14</sup>

Figure 4:

#### Fewer think fighting global warming will help state economy

*Do you think that Massachusetts doing things to reduce global warming would [READ AND ROTATE OPTIONS] or would it have no effect in the state economy?*



## IV. SUPPORT FOR POLICY EFFORTS TO REDUCE GREENHOUSE GAS EMISSIONS

Global warming may not be a top priority, but residents still support a wide range of policies to combat global warming and prepare for its impacts. Support comes both in the form of endorsing policies that will require significant public funding and a willingness to pay more as individuals for renewable energy.

### A. Residents are open to a wide range of policies to reduce global warming.

Despite not seeing global warming as a top priority for state government, residents do back, to varying degrees, action on the issue. Majorities endorse all 12 policies tested for reducing or adapting to global warming. Better than 50 percent “strongly support” eight of them. Even the lowest-rated option, instituting a revenue-neutral carbon tax, is supported by 56 percent and strongly supported by a quarter of residents.

Two-thirds strongly support government using its regulatory power to make new buildings (65 percent) and the state’s electrical grid (63 percent) more energy efficient (Figure 5). Fewer strongly support changing the state’s zon-

ing laws to encourage more density near transit (37 percent) and replacing some taxes with a tax on fossil fuels (26 percent). Nonetheless, both garner majority support overall.

Recent national polling has also found majority support for different types of interventions to combat global warming. In June 2014, the ABC/*Washington Post* poll found 70 percent of Americans think the federal government should limit greenhouse gases from power plants.<sup>15</sup> A few months later, Pew found 64 percent support for the idea.<sup>16</sup> Two-thirds support funding research into renewable energy sources, according to an AP/NORC survey.<sup>17</sup> That same poll found 61 percent think the U.S. should be an international leader on climate change. And *USA Today* found 63 percent support for President Obama’s bilateral agreement with China to cut carbon emissions.<sup>18</sup>

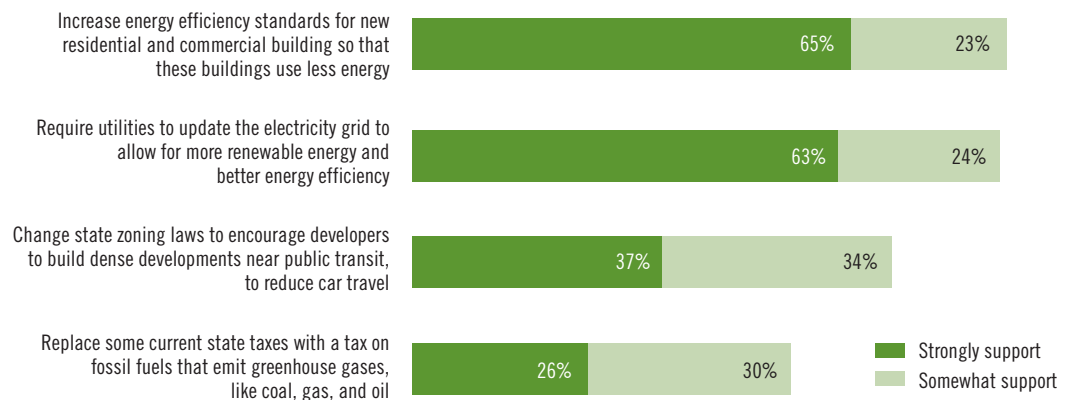
### B. Residents are willing to invest in efforts to fight global warming and pay more for renewable energy.

Some policy interventions will cost money, a point which needs to be noted for poll respondents

Figure 5:

#### Residents support stricter energy efficiency standards, updates to electrical grid

*I’m now going to read you a series of changes to laws and regulations the Massachusetts state government could make to save energy and combat global warming. For each, please tell me whether you would support or oppose that idea. And would you strongly support/oppose this idea, or just somewhat?*





when support for these policies is explored. Even after this clarification, residents embrace action. Three options that would require public funds were tested (Figure 6); each received majority support, and 55 percent “strongly supported” two of the three: increasing incentives for individuals and businesses to generate their own renewable energy and improving the state’s public transit network. Fewer strongly support tax incentives for purchasing electric vehicles, although the idea does have majority support overall.

Residents also responded favorably when asked about paying more for renewable energy on their monthly utility bill. Nearly three-quarters (72 percent) said they are willing to pay an extra \$5 a month if it meant that “greenhouse gases were significantly reduced.” Over half (55 percent) would pay \$10 more per month, and 38 percent would pay an additional \$20. To put these numbers into context, NStar’s recent average 29 percent increase in electricity rates translates into a \$28 hike per month.<sup>19</sup> Proposed state subsidies for solar power have been estimated to cost, at most, \$3.50 per month and likely closer to \$1.00.<sup>20</sup> The 2011 MPG poll also found broad majorities willing to pay each month to obtain “more energy from renewable sources,” albeit using lower monthly amounts.<sup>21</sup>

Once again, these Massachusetts numbers

are broadly consistent with national polling. Three national polls from June 2014—coinciding with the Obama administration’s new regulations on greenhouse gas from power plants—found majorities of Americans willing to pay more for energy to reduce greenhouse gases. NBC and the *Wall Street Journal* found 57 percent support requiring companies to reduce greenhouse gases “even if it would mean higher utility bills.”<sup>22</sup> Bloomberg found 62 percent willing to pay more for energy “if air pollution from greenhouse gases could be reduced.” And 63 percent of respondents to an ABC/*Washington Post* poll thought the government should limit greenhouse gases even if it raised their energy bills by \$20 a month.<sup>23</sup>

### C. Residents also want action to adapt to climate change.

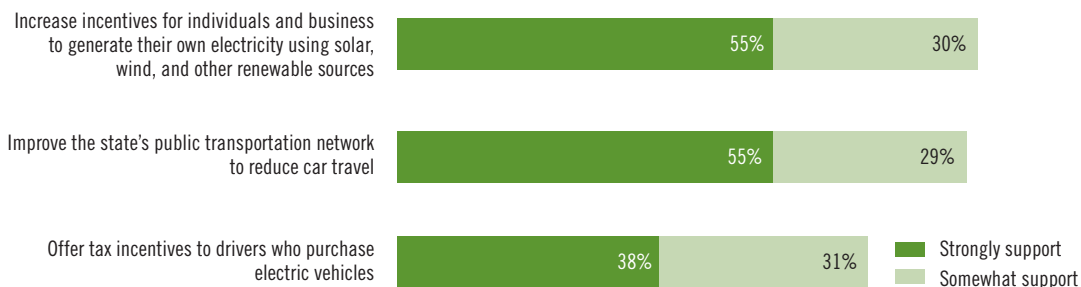
While a plurality of residents still think climate change can be stopped, many are also seeing the effects already and want state action to minimize damage. Superstorm Sandy was a striking and high-profile example of the vulnerabilities of our present infrastructure when confronted by a major storm. A 2014 federal report has projected that sea level rise of between 1 and 4 feet by 2100 would leave Boston vulnerable to flooding.<sup>24</sup>

Infrastructure improvements top the list

Figure 6:

#### Residents willing to invest in renewables, public transit

Now let’s talk about things which the state government could do which would require public funding. For each, please tell me whether you would support or oppose public funding for the idea. And would you strongly support/oppose public funding for this idea, or only somewhat?



of strategies to prepare for the effects of climate change (Figure 7). Nearly two-thirds (65 percent) of residents strongly support hardening key infrastructure against flooding in the event of major storms. This idea received strong support from a majority in every demographic, including those who doubt that global warming is happening.

## RESIDENTS ARE SEEING EFFECTS OF CLIMATE CHANGE NOW, AND THEY WANT ACTION TO MINIMIZE DAMAGE.

Majorities also strongly support restoring wetlands (54 percent) to act as storm buffers, and requiring buildings to relocate their vital systems to higher floors (52 percent). Constructing a sea wall to protect Boston from storm surges was less well-received; even in Boston and its Inner Suburbs, only 39 percent of residents strongly support the idea. Nonetheless, nearly two-thirds (65 percent) at least “somewhat support” it. These levels of support further underscore broad acceptance for action, even in the absence of a

sense of immediate urgency.

This support for preparation echoes national poll findings that show Americans embrace adaptation strategies to prepare for the effects of climate change. The Woods Institute at Stanford University found that 82 percent favor starting to prepare for those effects now rather than waiting. More Americans in that survey support changing development patterns to avoid coastal impacts than more intensive activities like building sea walls or buying coastal property from landowners. Moreover, three-fifths (60 percent) think those impacted by climate change should pay for these preparations, rather than the government.<sup>25</sup>

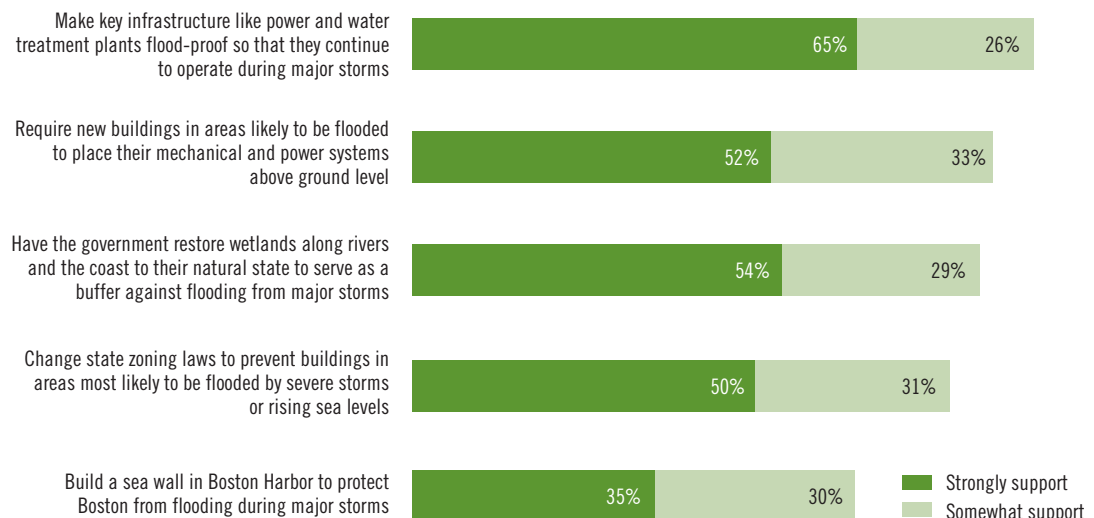
### D. Residents strongly support renewables for future energy generation.

With three coal-fired power plants and one nuclear station going offline in New England, energy generated by these facilities will need to be replaced. Residents’ top four choices were all renewable: solar, wind (both on-land and off-shore), and hydroelectric. Natural gas was favored by half of

Figure 7:

#### Residents want to prepare for effects of climate change

*I'm now going to read you a series of actions that some people say the Massachusetts state government should do to prepare for the future potential impacts of global warming. For each, please tell me whether you would support or oppose that idea. And would you support/oppose this idea strongly, or only somewhat?*



### DEMOGRAPHIC AND REGIONAL DIFFERENCES ON ACTION

Overall, the groups most likely to believe in warming are also more supportive of taking action. For most of the policies tested, Democrats and non-white voters stood out as the groups most supportive. The age split apparent in the belief figures was also present on most but not all of the policies, with the two youngest brackets more likely to strongly support action than their elders.

There was relatively less regional variation in opinion, with different geographies favoring some policies but opposing others. Majorities in three of the four regions strongly support investing in public transit, but only 41 percent in Western and Central Massachusetts do. This may be because this region is farthest from the reach of the MBTA. Southeast Massachusetts, which tends to vote more Republican, did lag the other regions in support for a regulatory action like requiring utilities to update the electric grid. But the Southeast was in line or ahead of other regions on changing zoning to accommodate more transit-oriented development, investing in transit, and flood-proofing vital infrastructure. Support for policy prescriptions may hinge more on the particular benefits each region thinks it will see, rather than its belief or disbelief in climate change.

residents, while nuclear power lagged behind the pack. Nuclear did better in the Southeast region, home of the Pilgrim Nuclear Power Station in Plymouth (Figure 8). But even there, only slightly more than a third (35 percent) thought New England should build more nuclear power.

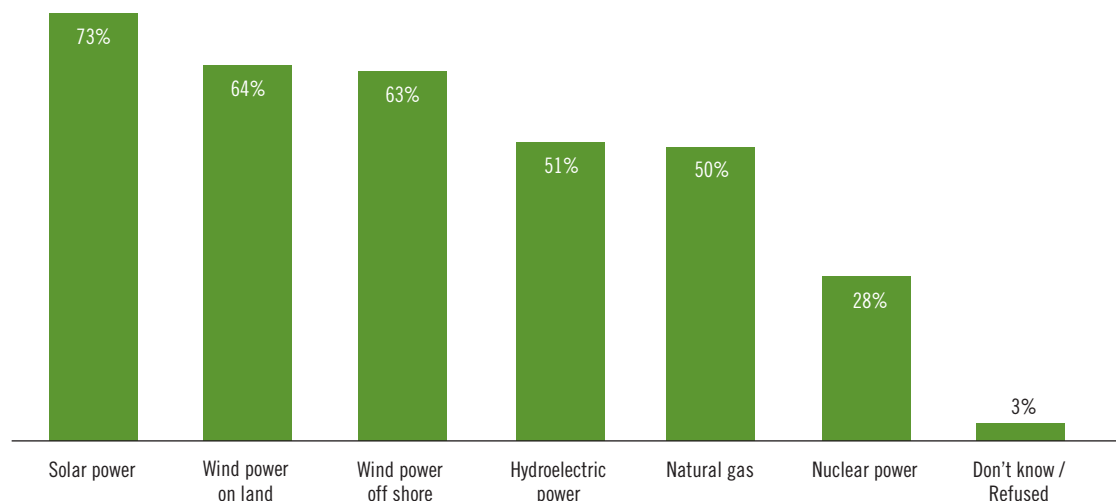
This general ordering appears to be stable in

recent years. A 2011 MPG poll, which posed the questions somewhat differently, nonetheless found wind and solar far ahead of the pack in terms of desired sources for our future energy needs, with natural gas ahead of nuclear.<sup>26</sup> (The earlier poll did not include hydroelectric as an option.)

Figure 8:

#### Residents favor renewables for future energy generation

Three coal-fired power plants and one nuclear power plant in New England are scheduled to go offline in the next few years. Which of the following energy sources should the region use to replace the electricity generated by these plants? You can select as many as you like.



## V. ACTING TO REDUCE PERSONAL GREENHOUSE GAS EMISSIONS

Our 2011 report examined the possibility of establishing a “culture of climate protection” in the Commonwealth, in which personal actions to conserve energy and reduce greenhouse gas emissions would become social norms. Establishing such a culture would help address the large share of greenhouse gases emitted by households and individuals—40 percent of U.S. energy use and carbon dioxide emissions, according to one estimate.<sup>27</sup> Policies aimed at reducing emissions at the individual level would create a “behavioral wedge” to reduce carbon emissions. Experts estimate that policies aimed at changing individual behaviors could reduce household emissions by 20 percent over 10 years “with little or no reduction in household well-being.”<sup>28</sup>

Despite the promise of this approach, motivating individuals to change their personal behavior has been slow going. This new poll shows that, while some progress has been made, there is still much to be done to reach the point where climate-protecting behaviors become commonplace, and that fear of global warming may not be the most powerful motivator. And as in 2011, there is little evidence of a relationship between belief in cli-

mate change and actually taking actions that would reduce personal emissions.

### A. Residents are less likely to act to cut their own carbon emissions.

Residents are less likely to take action on their own than they are to support the larger-scale policies to address climate change discussed above. At best, only half said they were either already doing or “very likely” to take on a set of energy savings actions (Figure 9). Willingness to engage in these personal actions is still considerably lower than support for larger public projects to fight global warming.

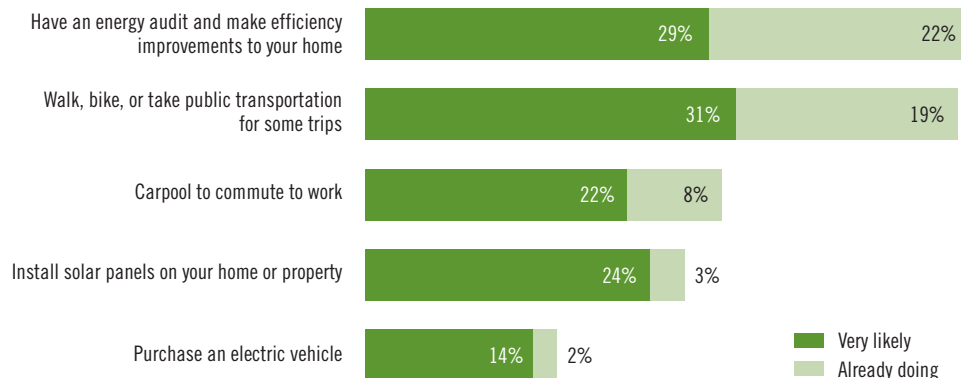
### B. Belief in global warming brings good plans, little action.

The 2011 survey found no strong connection between belief in global warming and various personal actions, like setting one’s thermostat to save energy or checking that one’s car tires are properly inflated. Residents were doing or not doing these actions at close to the same rate regardless of whether they were convinced the global warming was happening or were dismissive of the idea.

Figure 9:

#### Residents less likely to take action on their own to combat global warming

Please tell me how likely you would be to doing each of the following. First, would you say you are very likely, somewhat likely, not too likely, or not at all likely to \_\_\_\_\_? If you are already doing or have done any of these, or if the idea is not applicable to you, please say so.



This new survey shows there is a link between *intent* and belief but not *action* and belief. People who believe in global warming and think it is at least partially man-made are more inclined to say they would be likely to engage in some of the carbon-reducing actions tested (Figure 10). More than a third (36 percent) of believers say they would be very likely to walk, bike, or take transit for some trips, compared to a quarter (23 percent) of all others. The same dynamic applies to carpooling and purchasing an electric car.

But when it comes to taking action, the data from this survey are entirely consistent with the

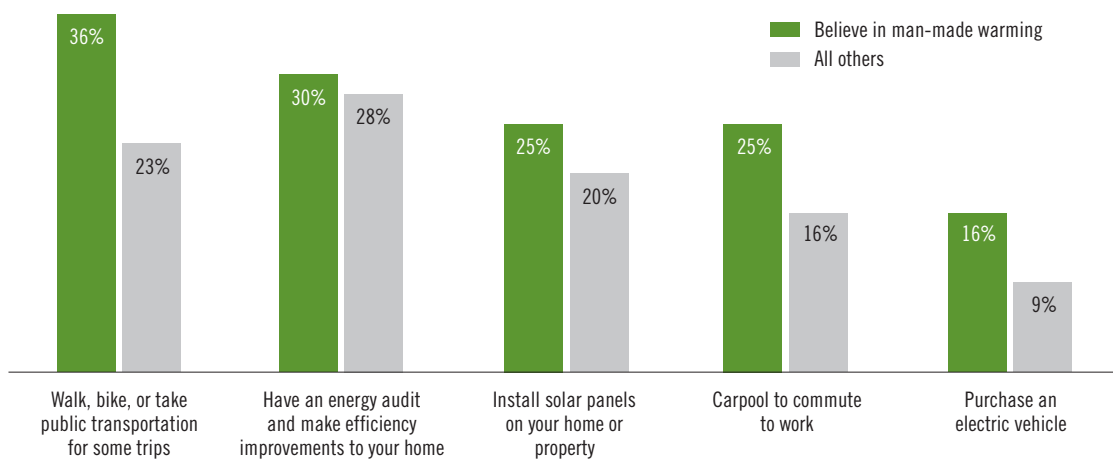
2011 findings. There is no connection between belief in global warming and personal action (Figure 11). In each case, those who believe in man-made global warming are no more or less likely to engage in energy saving behaviors than those who do not.

It is worth noting that the actions tested in this year's survey require a more significant investment than those in the 2011 survey. It is less of a lifestyle change to lower one's thermostat than it is to install solar panels or change one's commute to work. Nonetheless, it appears belief in warming is not driving behavioral change, large or small.

**Figure 10:**

**Believers in man-made warming more likely to say they would change some behaviors to reduce their carbon emissions...**

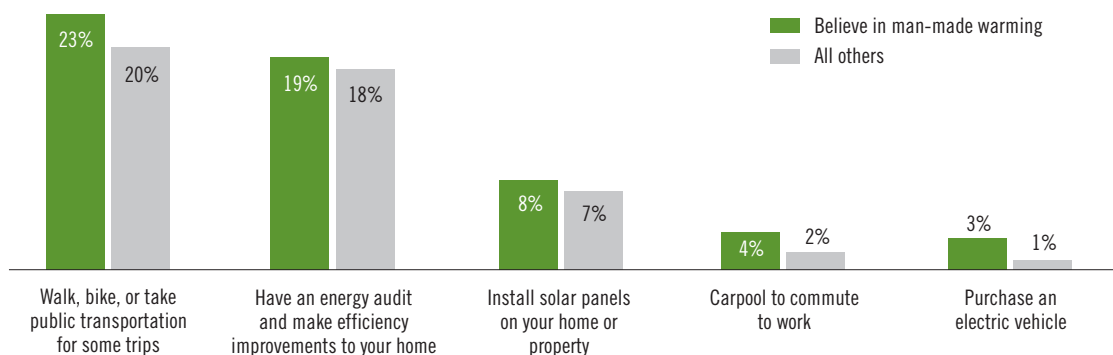
*Percent "very likely" to do each action*



**Figure 11:**

**...but believers are no more likely to be engaging in carbon-reducing actions already.**

*Percent "already doing" each action*



## VI. CONCLUSION

According to NASA and NOAA, 2014 was the warmest year on record, providing further evidence that climate change is real and happening.<sup>29</sup> Some scientists think climate change could contribute to major *winter* storms like the blizzards of 2015.<sup>30</sup> Scientific evidence may show that the problem is getting worse, but here in Massachusetts, public opinion has changed very little since 2011.

As in 2011, a large majority believe that warming is happening and is caused, at least in part by human actions. It may not be their top priority for state government, but majorities strongly support many government interventions to address the problem. Leaders may not hear many calls from their constituents urging action, but they will find a public receptive to many of the ideas that have been floated in recent years.

Belief that combating warming would help the economy has declined, but not so much so as to make tackling the issue a political liability for lawmakers. Very few voters will hold action on climate change against politicians. More importantly, passion is on the side of those wanting leaders to tackle the issue. Stanford University's Jon Krosnick, who has done perhaps more research on climate change opinion than anyone else, put it this way: "If I were a campaign consultant, which I'm not, it's a no-brainer to advise that if a candidate is comfortable being on the green side of this issue, this is something to trumpet, because it will win more votes than it will lose."<sup>31</sup>

This support is important given the magnitude of the challenge. Reaching the 2020 carbon reduction goal set forth in the Global Warming Solutions Act may require additional action; achieving an 80 percent reduction by 2050 will require major interventions. As the new administration sets out to meet these targets, they should take comfort knowing that there is strong, if quiet, public support for action.

Making good on the state's ambitious goals

with quiet support will require leadership. Residents are much less willing to change their own behavior in major ways to address climate change than they are to support major government action. And as in 2011, there is no evidence that a belief in global warming makes individuals any more likely to engage in carbon reducing activities.

If concern about climate change does not make a difference, it may be more productive to understand and cultivate the motives that are driving behaviors. Having an energy audit and making improvements saves money and enhances the value of one's home. Walking, biking, and taking transit may spare residents the cost and hassle of owning a car, or enable them to get exercise as part of their daily commute. Tapping into these motives and designing policies to encourage them will achieve the end goal of reducing carbon, even if climate protection is not foremost on the public's mind.

It is also worth understanding why very few residents are engaging in other actions. Both solar panels and electric vehicles are still relatively new and expensive. As these technologies mature and drop in price, they will likely find a wider market. Government can play a role in encouraging that market, through infrastructure investment and incentive programs. Indeed, majorities strongly support improving the electricity grid and expanding incentives for personal solar and wind generation. (A majority also supports electric vehicle incentives, but less strongly.) This may be a case where, if the government builds it, the public will come along.

It is natural for political leaders to prefer to ride a wave of public support when pushing for new policy initiatives, especially ones that will require public funding. On global warming, this wave has yet to build. Living up to the commitments to climate protection that Massachusetts has made will require true leadership.

## APPENDIX A: SURVEY METHODOLOGY

These results are based on a survey of 1,004 Massachusetts residents conducted September 19-26, 2014 by The MassINC Polling Group. Live telephone interviews were conducted via both landline and cell phone using dual-frame, random digit dialing (RDD) sampling methods. Interviews were conducted in both English and Spanish based on the preference of the respondent. Telephone interviewing was conducted by Braun Research Inc under supervision of The MassINC Polling Group. The margin of sampling error is  $\pm 3.1$  percentage points at the 95 percent level of confidence.

The data were weighted using a two stage weighting process to adjust for sample design and differential non-response. The target population for this survey was adult residents of Massachusetts. As such, weighting was conducted to match Massachusetts population parameters based on data from the U.S. Census Bureau. First weights were applied to account for telephone usage patterns and the associated differential probability of selection. The second stage of weighting matched sample demographics to population parameters on a number of demographic characteristics.

## APPENDIX B: TOPLINE SURVEY RESULTS

Survey of 1,004 Massachusetts residents

Field Dates: September 19-26, 2014

I'd like to ask you about long-term issues the Massachusetts State Legislature could focus on. As I read from a list, please tell me if you think each should be a high priority, a medium priority, or a low priority for the state government over the long term? First, should READ FIRST ITEM be a high priority, medium priority, or a low priority for the state government over the long term? What about READ NEXT ITEM. REPEAT QUESTION SCALE AND STEM AS NEEDED.

ORDER RANDOMIZED		HIGH PRIORITY	MEDIUM PRIORITY	LOW PRIORITY	REFUSED
Jobs and the economy	2011	89%	7%	2%	1%
	2014	83%	12%	4%	1%
Education	2011	83%	14%	3%	1%
	2014	83%	13%	3%	1%
Health care	2011	71%	22%	6%	1%
	2014	77%	17%	5%	1%
Taxes	2011	49%	37%	11%	3%
	2014	49%	36%	12%	3%
Global warming	2011	32%	35%	29%	4%
	2014	41%	31%	25%	3%
The state transportation system	2014	39%	42%	17%	2%

### BELIEF IN GLOBAL WARMING

You may have heard about the idea that the world's temperature has been going up slowly over the past 100 years. Do you think this...

	2011	2014
Has probably been happening	77%	79%
Has probably NOT been happening?	17%	17%
Don't Know / Refused	6%	4%

*The following asked only of those who believe global warming is happening.*

How sure are you that the Earth's temperature has been going up—extremely sure, very sure, somewhat sure, or not sure at all? Order rotated.

Extremely sure	33%
Very sure	30%
Somewhat sure	30%
Not sure at all	7%
Don't Know / Refused	1%



*The following asked only of those who believe global warming is not happening.*

How sure are you that the Earth’s temperature has NOT been going up—sure, very sure, somewhat sure, or not sure at all? Order rotated

Extremely sure	22%
Very sure	20%
Somewhat sure	29%
Not sure at all	26%
Don't Know / Refused	3%

*The following asked only of those who believe global warming is happening or are undecided.*

Do you believe increases in the Earth’s temperature are due more to...

	2011	2014
The effects of pollution from human activities	61%	60%
Natural changes in the environment	21%	17%
Both (not read)	13%	21%
Neither (not read)	N/A	1%
Don't Know / Refused	5%	2%

On some issues, people feel that they have all the information they need in order to form an 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	35%
I need a little more information	21%
I need some more information	24%
I need a lot more information	19%
Refused	1%

## IMPACTS OF GLOBAL WARMING

As you may know, the idea that the earth's temperature is slowly increasing is often called global warming.

Which of the following reflects your view about the effects of global warming? Order rotated: The effects have already begun to happen. They will start happening within a few years. They will start happening within your lifetime. They will not happen within your lifetime, but they will affect future generations. OR, They will never happen?

	2011	2014
Already begun to happen	54%	57%
Within a few years	4%	4%
Within your lifetime	10%	10%
Will affect future generations	18%	17%
Will never happen	11%	8%
Don't Know / Refused	3%	4%

Which of the following do you think that Massachusetts is likely to experience as result of global warming?

ORDER RANDOMIZED	YES	NO	DON'T KNOW / REFUSED
Coastal flooding	72%	23%	6%
Sea level rise	72%	21%	7%
Extreme heat waves	57%	37%	6%
More powerful storms	74%	20%	7%
Drought	43%	49%	8%

Do you think that [READ AND ROTATE FIRST THREE OPTIONS] will be most impacted by climate change in Massachusetts, or do you think residents of all income levels will be impacted equally?

Low-income residents	22%
Middle class residents	4%
Wealthier residents	3%
All impacted equally	65%
Won't experience problems (not read)	4%
Don't Know / Refused	2%

If a candidate for governor of Massachusetts supported taking aggressive action to address global warming, would it make you more likely or less likely to vote for the candidate, or would it make no difference?

More likely	39%
Less likely	12%
Would make no difference	44%
Not registered / not planning to vote (not read)	1%
Don't Know / Refused	3%

Do you think global warming can be stopped at this point, or is it too late?

Can be stopped	46%
Already too late	33%
Not happening (not read)	8%
Don't Know / Refused	13%

Do you think that Massachusetts doing things to reduce global warming would [READ AND ROTATE OPTIONS] or would it have no effect on the state's economy?

	2011	2014
Help the state's economy	53%	39%
Hurt the state's economy	16%	24%
Would have no effect	23%	30%
Don't Know / Refused	7%	8%

I'm now going to read you a series of changes to laws and regulations the Massachusetts state government could make to save energy and combat global warming. For each, please tell me whether you would support or oppose that idea. PROBE: And would you strongly support/oppose this idea, or just somewhat?

ORDER RANDOMIZED	STRONGLY SUPPORT	SOMEWHAT SUPPORT	SOMEWHAT OPPOSE	STRONGLY OPPOSE	DON'T KNOW/ REFUSED
Require utilities to update the electricity grid to allow for more renewable energy and better energy efficiency	63%	24%	5%	6%	2%
Increase energy efficiency standards for new residential and commercial building so that these buildings use less energy	65%	23%	5%	4%	2%
Change state zoning laws to encourage developers to build dense developments near public transit, to reduce car travel	37%	34%	12%	10%	7%
Replace some current state taxes with a tax on fossil fuels that emit greenhouse gases, like coal, gas, and oil	26%	30%	16%	21%	7%

Now let's talk about things which the state government could do which would require public funding. For each, please tell me whether you would support or oppose public funding for the idea. And would you strongly support/oppose public funding for this idea, or only somewhat?

ORDER RANDOMIZED	STRONGLY SUPPORT	SOMEWHAT SUPPORT	SOMEWHAT OPPOSE	STRONGLY OPPOSE	DON'T KNOW/ REFUSED
Improve the state's public transportation network to reduce car travel.	55%	29%	6%	7%	3%
Increase incentives for individuals and business to generate their own electricity using solar, wind, and other renewable sources.	55%	30%	6%	6%	3%
Offer tax incentives to drivers who purchase electric vehicles	38%	31%	12%	14%	4%

Three coal-fired power plants and one nuclear power plant in New England are scheduled to go offline in the next few years. Which of the following energy sources should the region use to replace the electricity generated by these plants? You can select as many as you like. *Order rotated. Multiple responses allowed, Percentages add up to more than 100%.*

Nuclear power	28%
Solar power	73%
Hydroelectric power	51%
Natural gas	50%
Wind power off shore	63%
Wind power on land	64%
Don't know / Refused	3%

I'm now going to read you a series of actions that some people say the Massachusetts state government should do to prepare for the future potential impacts of global warming. For each, please tell me whether you would support or oppose that idea. PROBE: And would you support/oppose this idea strongly, or only somewhat?

ORDER RANDOMIZED	STRONGLY SUPPORT	SOMEWHAT SUPPORT	SOMEWHAT OPPOSE	STRONGLY OPPOSE	DON'T KNOW/ REFUSED
Change state zoning laws to prevent building in areas most likely to be flooded by severe storms or rising sea levels	50%	31%	9%	6%	4%
Require new buildings in areas likely to be flooded to place their mechanical and power systems above ground level	52%	33%	6%	6%	4%
Have the government restore wetlands along rivers and the coast to their natural state to serve as a buffer against flooding from major storms	54%	29%	8%	6%	3%
Build a sea wall in Boston Harbor to protect Boston from flooding during major storms	35%	30%	15%	14%	6%
Make key infrastructure like power and water treatment plants flood-proof so that they continue to operate during major storms	65%	26%	3%	4%	3%

What if greenhouse gases were significantly reduced, but it raised your monthly energy bill by READ FIRST AMOUNT, would you favor or oppose spending this amount? What if it increased your monthly bill by READ NEXT AMOUNT? Amounts were rotated. Question was stopped at highest amount respondent would pay or lowest would not pay.

\$5	72%
\$10	55%
\$20	38%
Don't Know / Refused	28%

Please tell me how likely you would be to doing each of the following. First, would you say you are very likely, somewhat likely, not too likely, or not at all likely to READ FIRST ITEM? If you are already doing or have done any of these, or if the idea is not applicable to you, please say so. How about READ NEXT ITEM?

ORDER RANDOMIZED	VERY LIKELY	SOMEWHAT LIKELY	NOT TOO LIKELY	NOT AT ALL LIKELY	ALREADY DOING	NOT APPLICABLE	DON'T KNOW/ REFUSED
Purchase an electric vehicle	14%	27%	16%	32%	2%	7%	2%
Install solar panels on your home or property	24%	27%	10%	19%	3%	15%	2%
Have an energy audit and make efficiency improvements to your home	29%	22%	6%	10%	22%	9%	2%
Carpool to commute to work	22%	19%	11%	16%	8%	24%	1%
Walk, bike, or take public transportation for some trips	31%	24%	9%	12%	19%	5%	1%

## DEMOGRAPHICS

### Gender

Male	48%
Female	52%

### Age

18 to 29 years	21%
30 to 44 years old	27%
45 to 59 years old	28%
60 or over	23%
Don't Know / Refused	1%

### Party Identification

Democrat	52%
Republican	27%
Independent / Other	17%
Don't know / Refused	4%

### Education Level

High school or less	38%
Some college, no degree	25%
College graduate (BA/BS)	21%
Advanced degree	13%
Don't know / Refused	3%

### Income

Below 25,000 dollars	16%
25 to less than 75 thousand	34%
75 to less than 150 thousand	24%
150 thousand or more	11%
Don't Know / Refused	15%

### Race

White, not Hispanic	76%
Black, not Hispanic	7%
Hispanic	10%
Other	5%
Don't Know / Refused	3%

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