

TEXAS TRENDS 2023

CLIMATE CHANGE: BELIEFS AND ACTIONS



Hobby School of Public Affairs
UNIVERSITY OF HOUSTON



TEXAS SOUTHERN UNIVERSITY
Barbara Jordan – Mickey Leland
School of Public Affairs

Investigators

Report Authors

Maria P. Perez Argüelles, Research Associate, Hobby School of Public Affairs
Sunny Wong, Professor, Hobby School of Public Affairs

Research Team

Michael O. Adams, Professor of Political Science and Founding Director of the Executive Master of Public Administration Program, Texas Southern University

Gail J. Buttorff, Associate Director, Center for Public Policy; Instructional Assistant Professor, Hobby School of Public Affairs

Renée Cross, Senior Executive Director & Researcher, Hobby School of Public Affairs

Jim Granato, Dean, Hobby School of Public Affairs

Mark P. Jones, James A. Baker III Institute for Public Policy's Fellow in Political Science, Rice University; Senior Research Fellow, Hobby School of Public Affairs

Pablo M. Pinto, Director, Center for Public Policy; Professor, Hobby School of Public Affairs

Carroll G. Robinson, Associate Professor, Texas Southern University

Savannah L. Sipole, Research Associate, Hobby School of Public Affairs

Agustín Vallejo, Post-Doctoral Fellow, Hobby School of Public Affairs

Robert Lucas Williams, Assistant Professor, Texas Southern University

Introduction

Climate change has a significant and growing impact on extreme weather events and, by extension, every day life. As extreme weather events including heat waves, wildfires, droughts, and floods increase so does individual belief in climate change. People who believe climate change is happening and its anthropogenic causes are more likely to take action, such as changing daily habits and political engagement, to help combat climate change.¹

A recent report published by then [United Nations Environment Programme \(UNEP\)](#)² analyzes 20 countries,³ including the United States, and finds that they have not made sufficient efforts to commit to their goal of limiting warming to 1.5°C by strategies like reducing coal, and oil & gas production. Instead they are headed to produce, in total, around 110% more fossil fuels over the 1.5°C goal by 2030.

In this report we examine Texans perceptions of the role climate change has on extreme weather events, who respondents hold as most responsible for it, and the actions Texans are taking to cope with some of the effects of climate change.

To understand Texas's changing population and their attitudes toward relevant issues, including climate change and extreme weather events, the Hobby School of Public Affairs at the University of Houston and the Executive Master of Public Administration Program in the Barbara Jordan – Mickey Leland School of Public Affairs at Texas Southern University launched a five-year survey project in 2021. The 2023 survey includes a representative sample of all Texans and an oversample of Black Texans to account for an objective and statistically valid report of their diverse opinions and experiences. This third survey was fielded between October 6 and October 18, 2023. It focused on opinions about elections and public policies and included questions on perceptions and attitudes towards electric vehicles, extreme weather, and climate change. The survey was administered in English and Spanish to 1,914 YouGov respondents 18 years of age and older (yielding a weighted

¹Lee, T. M., Markowitz, E. M., Howe, P. D., Ko, C. Y., & Leiserowitz, A. A. (2015). Predictors of public climate change awareness and risk perception around the world. *Nature climate change*, 5(11), 1014-1020.

²SEI, Climate Analytics, E3G, IISD, UNEP (2023) Production Gap Report. Available at: <https://www.unep.org/resources/production-gap-report-2023>

³These 20 countries together account for 82% of the global fossil fuel production and 73% of consumption

confidence interval of +/-2.9). The respondents are part of a representative sample of the Texas adult population in terms of gender, age, race/ethnicity, and education.

This Climate Change report marks the fifth of a series of six reports presenting findings from the 2023 statewide survey. These reports have covered a range of topics, including state propositions, vouchers/school choice, the 2024 primary elections, and extreme weather.⁴

This report is divided into three chapters that explore survey respondents perceptions regarding 1) the effect of climate change on extreme weather events, 2) Texans opinions on who is responsible for climate change, and 3) Actions that survey respondents are taking to mitigate the effects of extreme weather events and climate change.

⁴To access the published reports please visit UH Hobby School of Public Affairs, 2023: UH-TSU Texas Trends Survey available at: <https://uh.edu/hobby/txtrends/2023/>

Executive Summary

1. More than half of the respondents (51%) are of the opinion that climate change has a significant impact on extreme weather events.
2. Experiencing extreme weather increases belief in climate change - 58% vs. 44% in affected vs. unaffected groups.
3. Younger generations, like Gen Z, show greater concern over climate change's role in extreme weather (58.7%) compared to the Silent Generation (32.4%).
4. Democrats (73.4%) acknowledge climate change's major role more than Republicans (30.6%).
5. Over 35% of respondents consider the meat and dairy sector highly responsible for climate change.
6. Only 20.9% consider the coal industry highly responsible, while 33% don't hold it responsible at all.
7. The oil and gas sector's responsibility is perceived to be low, with only 19.8% considering it very responsible and 41.6% not responsible at all.
8. Younger generations (51.9% of Generation Z respondents) assign more responsibility to the oil and gas sector for climate change compared to older generations (21.1% of Silent Generation).
9. 23.8% of people consider developing countries' governments very responsible, compared to 17.7% for developed countries.
10. 55.5% of respondents attribute climate change to individual behavior, while 26.7% do not.
11. 65% of people who attribute extreme weather to climate change hold the oil and gas industry very responsible.
12. Beliefs about climate change impact energy conservation actions, with 80% who see climate change as significant turning off lights, but only 5.3% investing in solar panels.

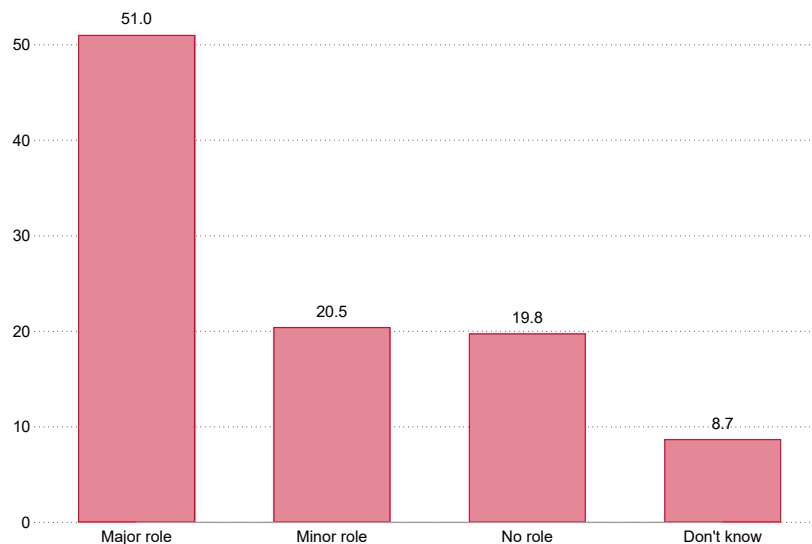
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13. Climate change perception impacts consumer behavior in the automotive industry. 47.02% of those who acknowledge its impact on weather are likely to consider buying an Electric Vehicle.
 14. Only 14.2% of respondents who do not attribute any role to climate change in extreme weather occurrences are very likely or somewhat likely to purchase Electric Vehicles.
 15. A majority believe their actions at home can make a difference in reducing extreme weather risks (60.2%), while 29.5% disagree.
 16. There is moderate trust in government interventions (54.1% support) and optimism in science and technology as a solution (52.2% agree).

The effect of climate change on extreme weather

To understand perceptions about the impact of climate change on extreme weather events, survey respondents were asked the following question: "As you may have heard, parts of the US have experienced significant heat waves, wildfires, droughts, and floods. What role, if any, would you say climate change has played in these extreme weather events?" We find that a clear majority of respondents are concerned about the effects of global warming on the weather conditions that their state is experiencing.

According to Figure 1, more than half of the respondents in the survey (51%) think that climate change has a significant impact on extreme weather events. By contrast, 20.5% believe that climate change plays only a minor role, while 19.8% think that it has no role in these extreme weather events. Those who were unsure accounted for 8.7%, indicating that while most respondents are convinced of climate change's role, a small portion of the population is not sure.

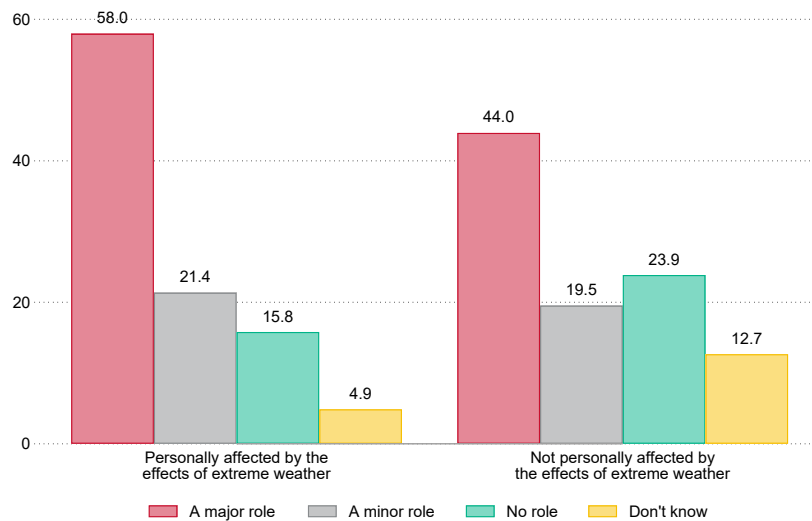
Figure 1: What role, if any, would you say climate change has played in extreme weather events?



Previous experiences with extreme weather events appear to influence the way respondents think about climate change. Those personally affected are more likely to believe in role of climate change in extreme weather events. Figure 2 shows how personal experiences with extreme weather may influence respondents' perceptions of climate change's role in such extreme weather.

We observe important differences in opinions between those who have been personally affected by extreme weather and those who have not. Individuals who have experienced extreme weather events firsthand are often more likely to perceive climate change as a pressing and immediate issue. Nearly three-fifths (58%) of those who have been personally affected by extreme weather believe in climate change's significant role, while only 44% of those who haven't experienced such events share this belief.

Figure 2: Role of climate change in these extreme weather events by previous experiences with extreme weather

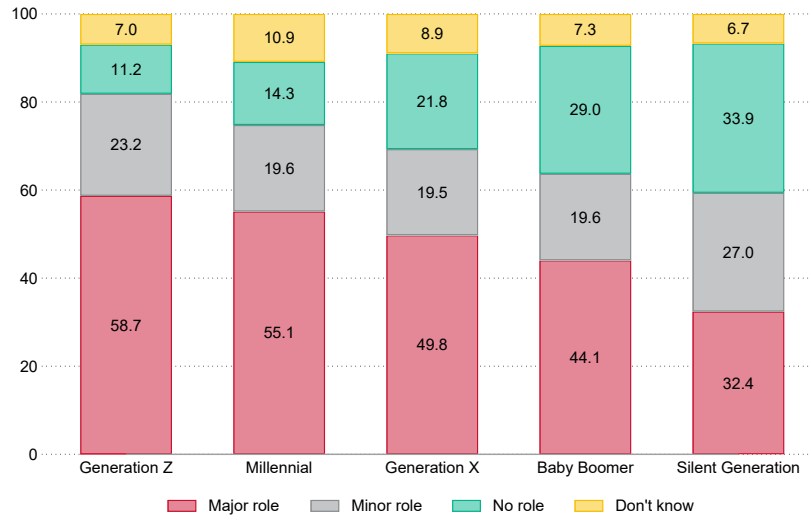


Respondents from different generations have varying opinions, principles, and experiences that shape their views on climate change. Figure 3 shows how beliefs about climate change's role in extreme weather events vary across different age groups⁵. Younger generations, especially Generation Z, exhibit more concern regarding the role of climate change in extreme weather. As many as 58.7% of respondents from this group see climate change as playing a major role in extreme weather. However, the percentage of respondents believing similarly steadily decreases with older generations and reaches the lowest point with the Silent Generation, of which only 32.4% of respondents believe climate change plays a major role. In contrast, the percentage of people who see climate

⁵We group respondents into five different generations: silent generation (born between 1928 and 1945), baby boomers (born between 1946 and 1964), gen x (born between 1965 and 1980), millennial (born between 1981 and 1996), and gen z (born between 1997 and 2012, but only those aged 18 and older were surveyed).

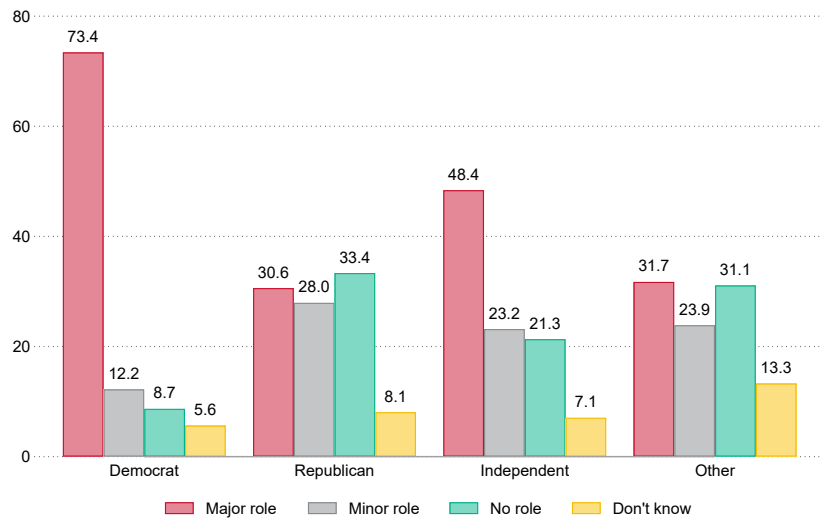
change as playing no role in extreme weather increases with older generations reaching up to 33.9% for the Silent Generation.

Figure 3: Role of climate change in extreme weather events by generation



Different political affiliations have contrasting views about the role of climate change in extreme weather events, highlighting the politicization of climate science in public discourse. Figure 4 shows that Democrats overwhelmingly see climate change as a significant contributor to extreme weather, with 73.4% acknowledging a major role in extreme weather events. In contrast, only 30.6% of Republicans see climate change playing a major role and 33.4% see climate change playing no role in extreme weather events. Independents are in the middle, with 48.4% attributing a major role to climate change, while also retaining a certain level of uncertainty. Respondents with other political affiliations present a divided view, with 31.7% acknowledging a major role to climate change, closely similar to the 31.1% who deny its role.

Figure 4: Role of climate change in extreme weather events by Party ID



Who is responsible for climate change?

The survey also asked respondents who has more responsibility when it comes to climate change. Respondents were asked to assign a level of responsibility to seven different groups including, major industries, governments, and individual behavior.

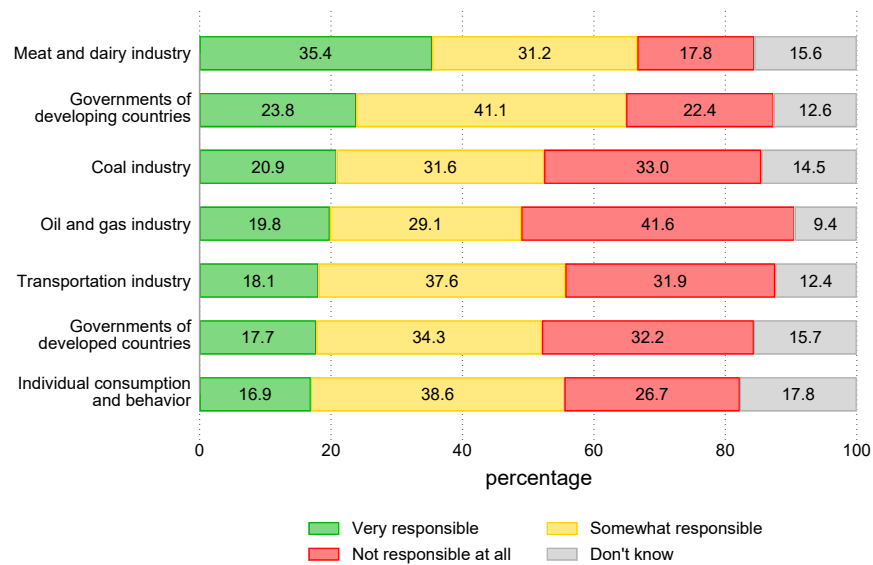
Figure 5 describes the Texans' perceptions of responsibility for climate change, revealing that the meat and dairy sector was seen as the most responsible, with 35.4% of respondents considering it very responsible and another 31.2% viewing it as somewhat responsible. The coal industry, often criticized for its environmental impact, has a mixed response, with 20.9% of people believing it is very responsible and 31.6% viewing it as somewhat responsible. However, a notable 33% did not hold it responsible at all.

The oil and gas sector was not perceived as overwhelmingly responsible. Only 19.8% and 29.1% of respondents considered it very and somewhat responsible, respectively. A significant 41.6% of respondents dismissed its role entirely. The transportation industry received a mixed response, with 18.1% of people attributing high responsibility and 37.6% assigning medium responsibility despite being a significant contributor to global emissions.

Respondents have different perceptions about the responsibilities of governments when it comes to climate change. According to our survey, 23.8% of the respondents think that developing countries' governments are "very responsible," while slightly fewer (17.7%) think the same about developed countries' governments.

Finally, the results reveal that 16.9% of respondents believed individual consumption and behavior were very responsible for climate change, but a combined majority acknowledged some level of responsibility, with 38.6% opting for somewhat responsible. This suggests an increasing awareness of the individual's role in the broader environmental narrative. Nonetheless, a considerable 26.7% of participants absolved individuals of any responsibility, and a further 17.8% were uncertain.

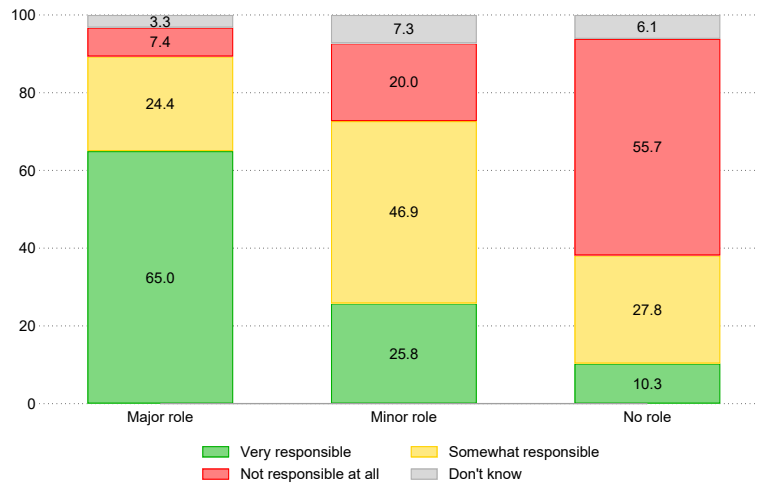
Figure 5: How responsible or not responsible for climate change do you think each of the following entities are?



For the case of Houston we are specially interested in understanding perceptions about the oil and gas industry. We take a sub sample of those respondents who answer the question in Figure 5. Figure 6 shows public perceptions of the responsibility of the oil and gas industry for climate change with respect to their beliefs about the connection between climate change and extreme weather events. A majority (65%) of the respondents who believe that climate change significantly contributes to extreme weather hold the oil and gas industry very responsible for this issue. An additional 24.4% of respondents think that the industry is somewhat responsible, which means that almost 90% of this group accepts the fact that the oil and gas sector has some level of responsibility for climate change. A small fraction (7.4%) believe that the industry is not responsible at all.

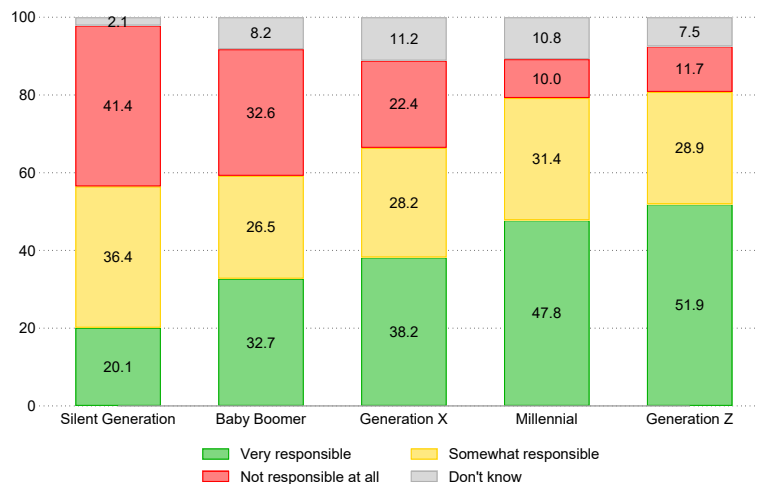
On the other hand, there is a difference in opinion among those who believe that climate change has a minor impact on extreme weather. While 25.8% of them still hold the oil and gas industry very responsible, 46.9% consider it to be somewhat responsible. The divergence in views is most pronounced among respondents who believed that climate change does not play any role in extreme weather. Only 10.3% of this group consider the oil and gas industry to be very responsible for climate change, while 27.8% believe that it is somewhat responsible. A significant majority (55.7%) do not hold the industry responsible for climate change at all, and a small portion (6.1%) of respondents have no clear stance on the issue.

Figure 6: How responsible or not responsible for climate change do you think the **oil and gas industry** is? and what is the role of climate change on extreme weather?



Perceptions of the oil and gas industry’s role in climate change vary across generations (Figure 7). Younger generations lean towards assigning more responsibility to the oil and gas industry for climate change compared to older generations. While 51.9% of Generation Z thinks the oil and gas industry is very responsible, only 21.1% of the Silent generation think it is very responsible. Similarly, a large percent of the Silent generation (41.4%) and Baby Boomers (32.5%) think the oil and gas industry is not responsible at all for climate change. This contrasts to the 10% of Millennial and 11.7% of Generation Z respondents who believe that the industry is not responsible at all.

Figure 7: Perceptions of oil and gas industry’s responsibility for climate change by generation



Actions to cope with extreme weather and climate change

Climate change is affecting global weather patterns, and individuals' beliefs in it influence their responses to extreme weather events. The survey asked questions related to actions, experiences, and perceptions when dealing with extreme weather events such as the extreme heat wave experienced in Texas during the summer of 2023.⁶

Beliefs about climate change are a key factor in determining individual actions towards energy conservation. Figure 7 in this section illustrates the actions taken to reduce household energy usage during the summer of 2023. Individuals attributing a major role to climate change on extreme weather conditions reported the highest engagement with energy conservation practices. The most common measure, turning off lights when not in use, was reported by 80% of respondents. Less than half, however, adopted energy-efficient light bulbs (44%) or raised their thermostats (42.9%), suggesting room for greater adoption of energy-saving measures. A significant minority also took more substantial steps, such as sealing windows (14.1%) or installing energy-efficient appliances (8.6%). Due to potential barriers, such as cost or feasibility, the investment in solar panels was the least popular option at 5.3%.

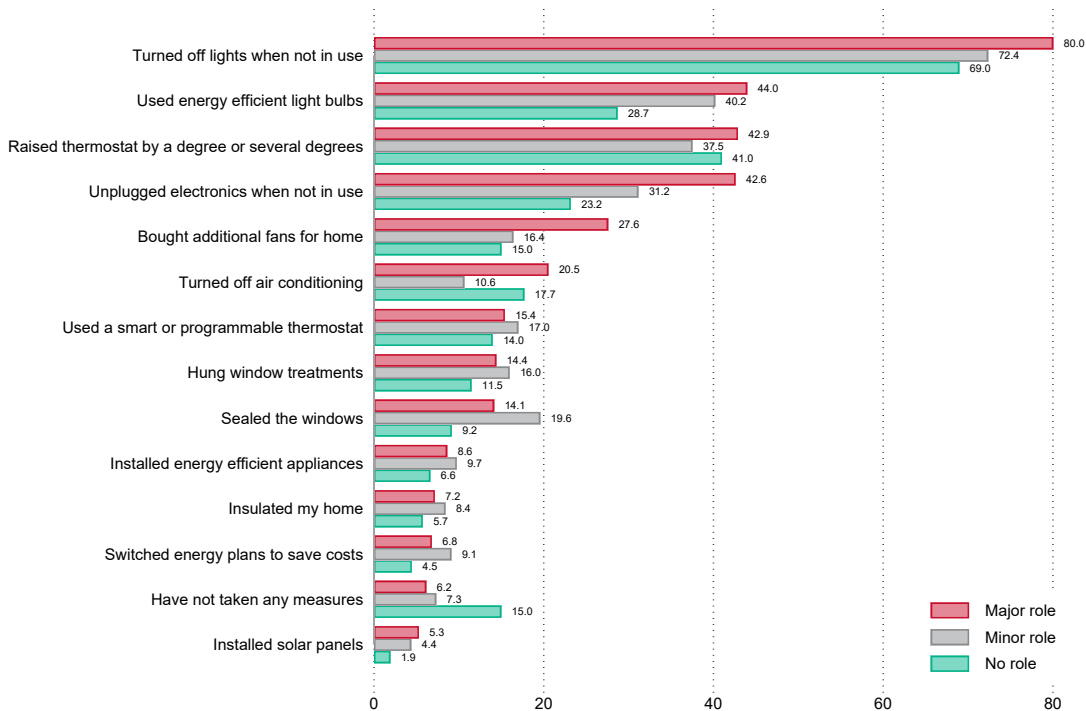
Respondents who view climate change as playing only a minor role in extreme weather events were generally less likely to engage in energy-saving actions, though turning off lights still lead at 72.4%. Among this group, we observe a notable drop in more investment-intensive actions such as installing energy-efficient appliances (9.7%) and solar panels (4.4%). This group also saw a slightly higher percentage of respondents not taking any measures (7.3%) compared to those who believe in a major role of climate change on extreme weather events.

Those who do not perceive climate change as a factor in extreme weather events were the least likely to adopt energy conservation measures, with a significant 15% not taking any measures. Turning off lights still ranked highest at 69%, yet the adoption

⁶For more details please, read the fourth report, "Impact of Summer Heat Wave," available at: <https://uh.edu/hobby/txtrends/2023/2>

of energy-efficient bulbs and smart thermostats was considerably lower than other groups.

Figure 7: Measures taken to reduce household’s energy use during the summer of 2023 and the role of climate change on extreme weather

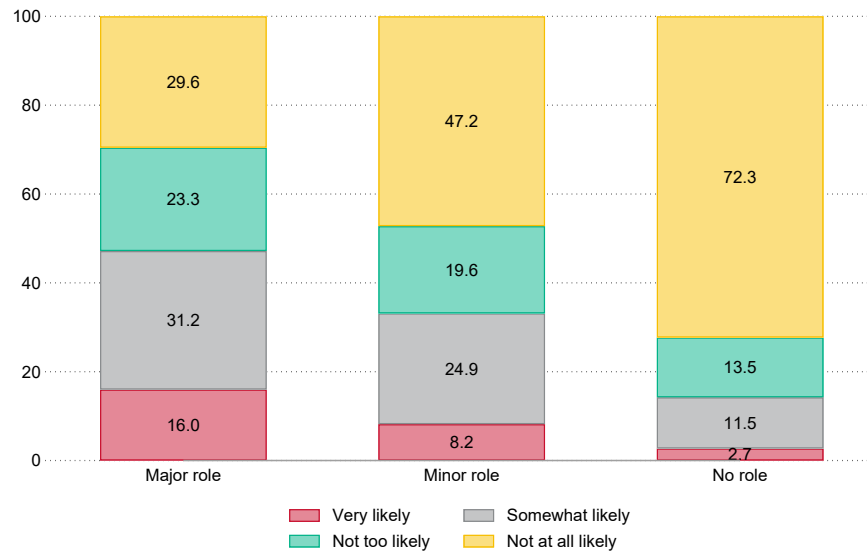


Climate change perception can be an important factor in determining environmentally friendly consumer choices, particularly in the automotive sector. Figure 8 indicates that people who believe in climate change are more likely to purchase an electric vehicle (EV). Forty-seven percent of those who think climate change is a significant factor in extreme weather are very or somewhat likely to buy an EV.

By contrast, people who view climate change as having a minor impact on extreme weather are less inclined toward EVs, with only 33.1% indicating that they are very or somewhat likely to make such a purchase. Nearly half of this group (47.2%) said they were not at all likely to buy an EV, suggesting that the perceived low significance of climate change reduces the urgency or desirability to switch to an electric vehicle.

The difference is even more apparent among respondents who do not attribute any role to climate change in extreme weather occurrences, with only 14.2% indicating any likelihood of buying an EV. The majority of this group (72.3%) said they are not at all likely to consider purchasing an EV. This trend highlights a strong connection between climate change recognition and behavioral changes, such as adopting electric vehicles.

Figure 8: Likelihood of buying an Electric Vehicle and the role of climate change on extreme weather



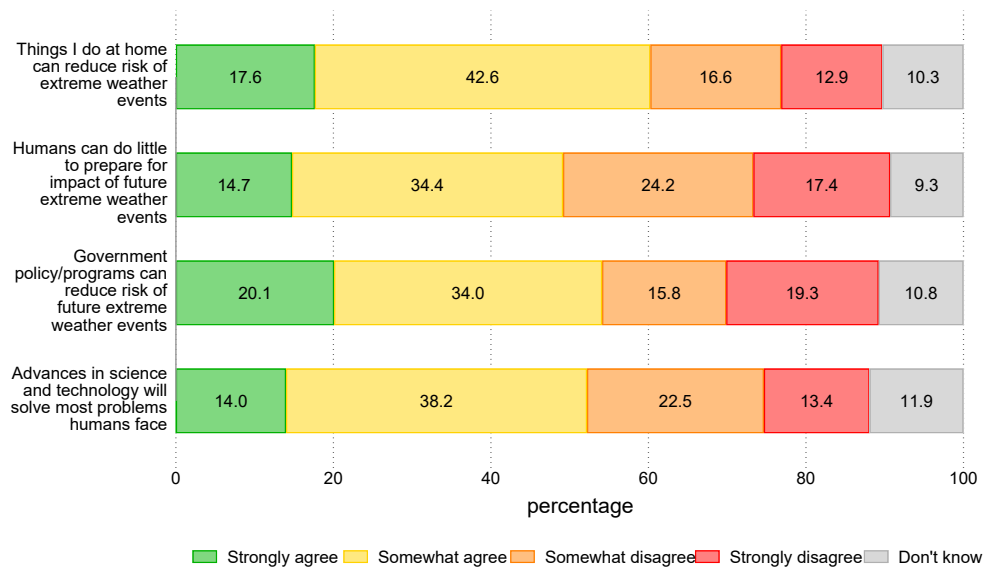
Responses show various perspectives on individual actions, human adaptability, government intervention, and technological solutions to climate change. Many believe in the positive impact of individual actions and technology and have moderate confidence in government interventions, but some hold contrasting views, reflecting the complexity of public opinion on climate change and extreme weather preparedness. According to Figure 9, when respondents were asked about the impact of their actions at home on reducing extreme weather risks, 60.2% either strongly or somewhat agree that their actions are important. However, 29.5% of participants expressed disagreement, and 10.3% said they are not sure.

Respondents were divided about human capacity for preparing for future extreme weather events. Almost half of respondents (49.1%) believe humans can do little to prepare for the impacts whereas 41.6% disagree that humans can do little. The rest remain unsure.

Responses to the effectiveness of government policy or programs in reducing future weather event risks show a majority of support. Over half (54.1%) of respondents believe government policy can reduce future weather risks while 35% disagree and 10.8% did not know.

Finally, optimism in science and technology as a solution to most human problems is apparent, with over half of the respondents (52.2%) agreeing with the statement. However, a significant number (35.9%) disagree, indicating that while some see the potential of technological progress to solve most problems, others are skeptical about its limitations in addressing complex issues like climate change.

Figure 9: Level of agreement with statements related to climate and extreme weather



Conclusion

Our survey study on climate change and its impact on extreme weather events has revealed several key insights. Over half of all survey respondents (51%) acknowledge a significant connection between climate change and extreme weather, indicating a general awareness of the environmental changes. Interestingly, personal experiences with extreme weather events reinforce respondents' belief in climate change. Those who have been directly affected by such events are significantly more convinced of the link between climate change and extreme weather compared to those who have not experienced them directly. Generational perspectives also differ significantly about this connection, with younger individuals, especially from Gen Z, showing greater concern about the impact of climate change on extreme weather events. Such concerns are, however, not evenly distributed across political lines, highlighting a politicized divide in climate change perception.

Public perception of the organizations and sectors responsible for climate change varies significantly. Over a third of respondents hold the meat and dairy industry accountable, while traditional energy sectors like coal and oil and gas are perceived with varying levels of responsibility. Overall, the latter two industries are notably less responsible according to respondents; however, the younger generations (Millennial and Gen Z groups) are much more likely to see the oil and gas industry to view this industry as responsible.

The belief of people in climate change and its impact on extreme weather events significantly influences their consumption behavior, especially with respect to cars. Individuals aware of the link between climate change and extreme weather are more likely to consider purchasing an electric vehicle than those who do not perceive such a link. While most people believe in the effectiveness of individual actions to mitigate the risks of extreme weather events, their confidence in government interventions and technological solutions is more measured, though still significant. This result suggests the public is cautiously optimistic about the potential for collective and innovative actions to tackle climate change.

This report provides multiple perspectives on climate change. While people acknowledge the issue, they hold diverse beliefs on the most efficient ways to conserve the environment. The challenge ahead is not only to bridge gaps in knowledge but also to transform awareness into consistent and effective action at the individual, local, private, and government level.

Survey Sample Demographics

The weighted survey population has a gender distribution of 51.2% women and 48.8% men. In terms of ethnic and racial composition of the sample, 44.5% of the Texans are White, 35.9% Latino and Hispanic, 12.5% are Black, and 7.5% are from other race and ethnic groups. Age wise, survey respondents between 18 and 29 years old represent 20.9% of the sample, those between 30 and 44 years old make up 30.3%, those between 45 and 64 years old represent 31.4%, and finally, respondents over 65 years old make up 17.5% of the sample. Regarding income distribution, 34% of respondents earn less than \$30,000 per year, 39% earn between \$30,000 and \$80,000 per year, and 26.5% earn more than \$80,000 per year. Geographically, 25.9% of the sample lives in the Dallas-Fort Worth metro area, 22.4% in the Houston metro area, 7.8% in the Austin area, 11.7% in the San Antonio metropolitan area, 9.8% in the South Texas Area, and 22.3% in the rest of Texas.