Griffith UNIVERSITY
Queensland, Australia

Climate Action Survey

Summary for Policy and Decision Making

Graham Bradley, Sameer Deshpande, Kerrie Foxwell-Norton,
Natasha Hennessey and Melissa Jackson

Climate Action Beacon

Griffith University, Queensland Australia
April 2022

The Griffith Climate Action Beacon (CAB) seeks to develop knowledge, leadership, capacity, and responses to enable effective and just action throughout society, with a focus on interdisciplinary research and cross-sectoral practice collaborations as catalysts for change. A key point of difference from other facilities is that the CAB's interdisciplinary and partnership approach enables research disciplines and communities-of-practice to collaboratively define, research, implement, and evaluate solutions for climate action.

The CAB's research focuses on three themes:

Theme 1: Motivation for Climate Action—building the case for and enabling the practice of climate action among individuals, and collectively in communities, organisations and government.

Theme 2: Future Climate Transitions—supporting progress towards climate-resilient development and net-zero carbon emissions.

Theme 3: Climate Justice—ensuring that climate actions are fair, equitable and just, contributing toward broader sustainable development goals.

A range of short- and long-term research projects are supported under each of these themes. The survey described in this report, the National Climate Action Survey, is a core part of the work conducted under Theme 1.

Please cite as: Bradley, G., Deshpande, S., Foxwell-Norton, K., Hennessey, N., and Jackson, M. (2022), Griffith Climate Action Survey: Summary for Policy and Decision Making, Griffith University, QLD, Australia.

Acknowledgements

THE SURVEY DESCRIBED in this report was commissioned by Griffith University's Climate Action Beacon. The survey was conducted by Climate Action Beacon members, Graham Bradley, Sameer Deshpande, and Anne Roiko.

Other members of the Griffith Climate Action Beacon who provided valuable contributions to the content of the questionnaire included Andreas Chai, Sue Cooke, Kerrie Foxwell-Norton, Cliff Goddard, Helen Bromhead, Melissa Jackson, Susan Harris Rimmer, Natasha Hennessey, Brendan Mackey, and Joseph Reser.

Kerrie Foxwell-Norton provided motivation and vital strategic direction. Natasha Hennessey contributed essential administrative support. Nicholas Ayers, Chloe Hurrell, and Grace Barker gave excellent research assistance.

Froline Garsota, Tani Masha, and the team from Dynata played a vital role in scripting the questionnaire, recruiting participants from their panel, and implementing the survey. Their diligence and flexibility in performing these roles is very much appreciated.

Many of the ideas for the survey content and methodology, and for this report, came from work completed by Joseph Reser and colleagues in surveys conducted in 2010 and 2011. Their contribution to the current work is substantial, and is gratefully acknowledged.

Thank you to the

3,915

AUSTRALIAN ADULTS who participated in this survey.

Executive summary

GRIFFITH UNIVERSITY'S CLIMATE ACTION BEACON conducted the first of five annual *Climate Action Surveys* in September–October 2021 as part of a longitudinal study to discover Australians'[1] thoughts and feelings about climate change and related environmental and climatic events, conditions, and issues. Significantly, this survey maps existing actions being undertaken by Australians alongside their ideas on further personal and societal climate action. This report gives details of the background to the survey, as well as its methods, major findings, and potential implications for policy and decision-makers. It accompanies a more detailed technical report that is available upon request: please visit the Climate Action Beacon website for more information.

To conduct the survey, a quota sample of resident Australian adults, stratified by gender, age group, and state of Australia, was recruited. An online questionnaire was constructed through processes of consultation with stakeholders, review of the academic and opinion poll literature, and iterative pilot testing. The final version of the questionnaire comprised 188 single items/questions, approximately 30 multi-item composite scales, and nine open-ended questions. After removal of cases that did not meet quality criteria, data from a final sample of 3,915 people (51.1% female, M_{age} = 46.6 years) were available for analysis.

The survey is broadly representative of the population based on markers of gender, age, Aboriginal and Torres Strait Islander heritage and in terms of the distribution of Australian states and territories.

The survey content pertains to the extent and distribution of different views about climate change; feelings/concerns about the threat and reality of climate change; knowledge of climate change and information sources used to obtain this knowledge; experiences of extreme weather events, natural disasters, and perceived manifestations of climate change; pro-environmental behaviours and lifestyles, and barriers to engaging in such behaviours and lifestyles; and broader worldviews and socio-political opinions. Extensive demographic data were also obtained from the participants, enabling the identification of sub-group differences in key climate change variables.

Major conclusions to be drawn from the study pertain to the high prevalence of beliefs in, and concerns about, climate change, and the overwhelming support for government policies that facilitate mitigation of the rate and extent of climate change. The results strongly suggest that, while climate change may have concerned a minority of Australians a decade ago, it is a mainstream issue that causes concern among, and elicits demands for action from, the majority of the populace in 2021.

Findings have implications for climate change community interventions, government policy, future research, and theory development. More specifically, the findings suggest particular policies to pursue, and variables, strategies, and population sub-groups to target in future endeavours to promote climate action.

At the time of writing, more detailed analyses of the quantitative and qualitative data, and deeper consideration of the implications of the findings, are ongoing.

[1] *The survey is broadly representative of the Australian population based on markers of gender, age, Aboriginal and Torres Strait Islanders and in terms of the distribution of Australian states and territories.*

77% of respondents accept climate change is real

16% unconvinced and/or complacent

5% sceptical

2% deny

Key findings

IN TERMS OF SAMPLE SIZE, methodological rigour, multidisciplinary input, and breadth of coverage, this is one of the most ambitious climate change surveys yet conducted in Australia. It is the first in a series of five annual surveys that deliver an exceptionally rich source of data on climate change attitudes and behaviours.

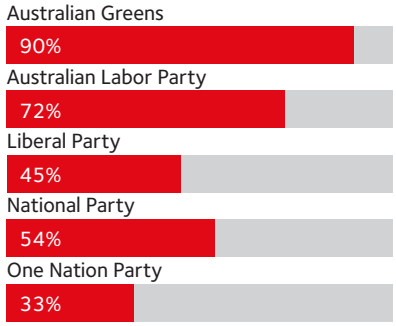
Results showed that Australians do not share a common understanding of the term *climate change*. Preferred definitions differ in scope (limited to temperature changes or inclusive of all climatic changes) and locus of causation (anthropogenic, natural, or a combination of the two).

Drawing on responses across a range of measures, the vast majority (77%) of survey respondents firmly accept the reality of climate change as fact. An estimated 16% remain unconvinced and/or complacent about climate change. While not totally convinced about climate change, this 16% nonetheless appear open to listening to arguments and responding to changes to their physical, economic and social environment. 5% can be described as sceptical and 2% deny the reality of climate change.

Demographic sub-groups that showed relatively high levels of climate change understanding, concern, and action included respondents aged 35 years or under, students, inner-urban residents, respondents educated to university level, those whose primary language spoken at home was not English, and those intending to vote for the Australian Greens or the Australian Labor Party. In contrast, climate change denial, disregard, complacency, and inaction were more common among the older, less highly educated, and more politically conservative members of the sample, women reported stronger beliefs and greater climate change concerns than their male counterparts.

Twenty-two percent of respondents believed that climate change is an 'extremely serious' problem right now, and 45% believed that it will be so in 2050.

87% **of respondents believe climate change should be Government priority.**



Climate change relevance when voting per political party.

76% stated that climate change will be important to them when they vote in the next federal election, but this percentage varied by preferred political party: Australian Greens (90%), Australian Labor Party (72%), Liberal Party (45%), National Party (54%), and One Nation Party (33%). Beliefs in, and concerns about, climate change tended to vary in predictable ways with political affiliation. Of note, mean levels of concern tended to be higher among intending National Party voters than intending Liberal voters, and the prevalence of recent *increases* in levels of concern about climate change was higher among intending National Party voters (43%) than among intending Liberal voter (33%).

87% of the respondents indicated that they believe that climate change should be a priority for the Government.

Knowledge of climate change causes, impacts, and responses was only modest, with some knowledge questions answered at little better than chance levels. Self-rated knowledge of climate change was assessed for the causes of climate change, the *consequences* of climate change, and for *effective responses* to climate change. The modal response to items asking 'how much do you feel you know' in each of these spheres was a *little* (rather than, for example, *virtually nothing* or *quite a lot*). Groups of respondents who tended to rate their knowledge as high included those whose main language spoken at home was not English, those who were university-educated, those intending to vote for the Greens or Labor, inner-urban residents, and students.

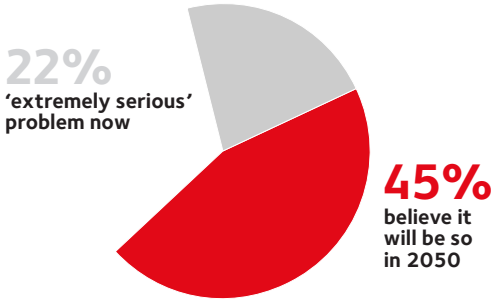
When considering government policies, the findings show that there is support from the majority of respondents for policies regarding future energy sources (e.g., restricting the construction of new coal-fired power stations), imposing a price on carbon, facilitating the uptake of electrical vehicles, and assisting those whose livelihood is threatened by the shift away from fossil fuels.

Australians use many sources for information about climate change. Australian public and commercial broadcast media and their own experiences of weather, climate, and environment were the most popular sources. However, they place the most trust in scientists, scientific publications, and long-established government bodies such as the Bureau of Meteorology and the CSIRO, expert advisory groups and environmental organisations.

76% of repondents stated climate change will be important when they vote.

Approximately 72% of the sample reported feeling either 'fairly' or 'very' concerned about the effects of climate change. This percentage has increased from 35% when a similar survey was conducted ten years earlier.

Several types of environmentally significant behaviours (climate actions) were assessed: past, current, and future behaviours; one-off and ongoing behaviours; private and public-sphere behaviours; hypothetical behaviours; changes in behaviour. Respondents claimed that they engage in an average of 5.5 of 16 pro-environmental behaviours (e.g., using public transport, carrying re-usable drink containers, signing environmental petitions). Substantial proportions of respondents expressed interest in adopting five environmentally-friendly actions in the future. For example, 55% expressed interest in installing a home solar battery system, and 47% were interested in getting an electric or hybrid vehicle. Only 29% of respondents said they would pay no more for an environmentally friendly appliance than they would for a less environmentally friendly alternative.



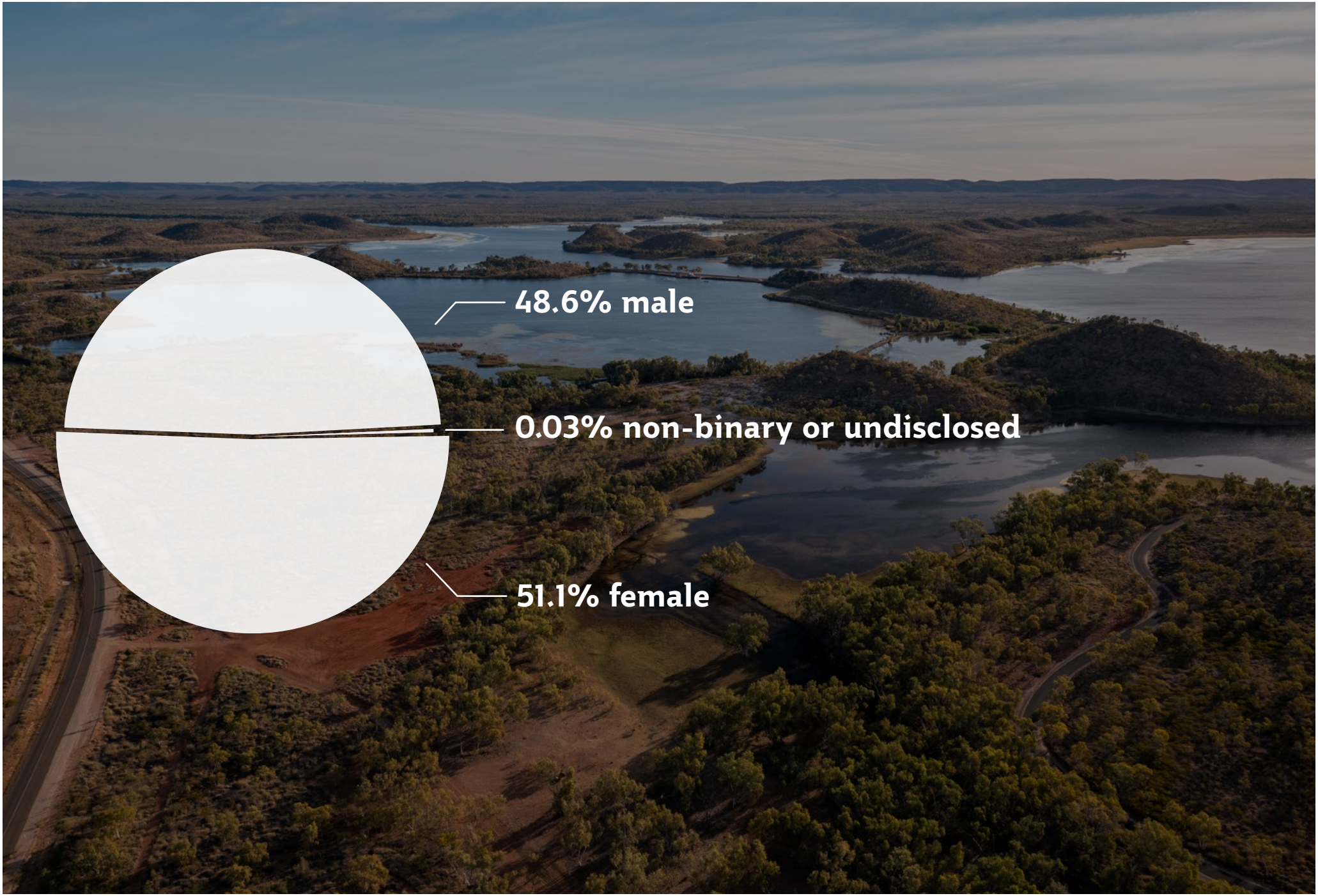
Respondents perception of climate change as a serious problem.

The most commonly cited reasons for not engaging in climate actions include entrenched routines/habits, insufficient time and money, doubts regarding efficacy, and lack of knowledge about what actions to take.

A behavioural willingness scale assessed the extent to which respondents were prepared to make lifestyle changes and financial commitments to support climate action; the findings suggest that Australians would generally be willing to make changes or support initiatives that focused on government or private sector-led responses like renewable infrastructure in their area (61%) or to take actions like reducing personal energy use (53%), but would be less willing to support initiatives or make changes where they would personally incur a financial cost, such as higher personal taxes (55%), higher fuel and electricity costs (56% and 55%) or pay significantly more for energy-efficient products (50%).

Thirty-one percent of respondents had personally and directly experienced at least one extreme weather or natural disaster event (e.g., an extreme heatwave, a cyclone, bushfire, drought, flood) in the preceding year, and 47% had done so prior to the preceding year. Those who had experienced at least one natural disaster or extreme weather event (within the last year and over a year ago) expressed greater concern and distress about climate change, and they were also more likely to engage in pro-environmental actions.

In response to questions about the effects of climatic and disaster events on respondents' use of insurance, 52% of respondents indicated a willingness to move home if their current residence was deemed to be uninsurable due to its exposure to the risk of flooding, bushfires, or other natural disasters.


48.6% male
0.03% non-binary or undisclosed
51.1% female

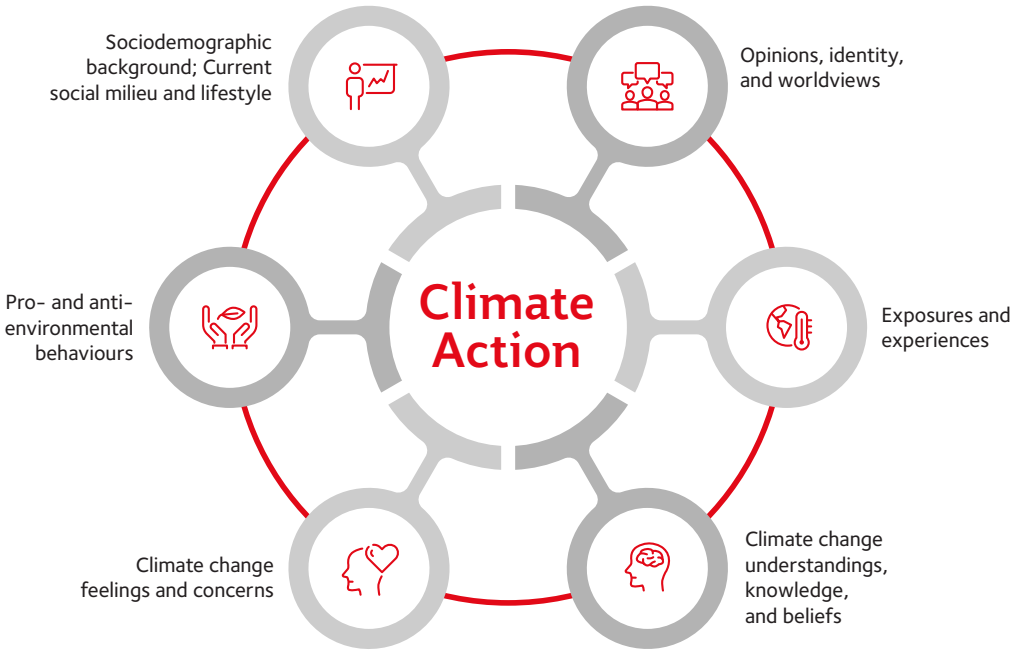
Survey background and overview

THE CLIMATE ACTION SURVEY provides quantitative and qualitative data on the status of, and impediments to, Australian climate action. The 2021 survey is the first of a series of five annual surveys, between 2021 to 2025. The survey findings are intended to provide data to support action on climate change for communities, local, state, and national governments, industry and researchers now, and into the future. Regional case studies will draw on the survey and enable deeper dives into the context and nuance of Australian communities.

The survey was intended to capture Australians' knowledge, beliefs, attitudes, and actions as they stood in 2021, and to compare these with the knowledge, beliefs, attitudes, and actions reported at other times and by other populations. Content covered by the survey falls under six major categories, namely, respondents' (1) socio-demographic and lifestyle characteristics (including the respondent's demographic characteristics, residential circumstances, and aspects of their social milieu); (2) opinions, self-identity, and worldviews; (3) exposure and experience factors (including exposure to/experience of natural disasters, extreme weather and other possible climate change events and conditions, and impacts of these); (4) knowledge, understandings and belief factors (including their knowledge, perceptions, beliefs, etc., about climate change and its causes and consequences, as well as the sources of these understandings); (5) feelings and concerns about climate change and its impacts; and (6) past, current, and possible future pro-and anti-environmental actions, including both mitigation and adaptation behaviours, plus reasons for not acting).

Oversimplifying, the six content categories include structural and pre-existing factors as well as psychological factors that contribute to both pro- and anti-environmental behaviours or climate actions.

Conceptual model underlying the climate action survey.



Survey procedures and sample

THE QUESTIONNAIRE used in this study was developed and progressively refined through a sequence of three pilot studies conducted over an eight-month period. The final version of the questionnaire comprised nine open-ended items/questions, 183 items that formed a part of a multi-item scale, and 188 other closed-ended questions.

The survey was administered online to volunteer members of a survey company panel from September 15th, 2021, to October 31st, 2021. The median survey completion time was 40 minutes.

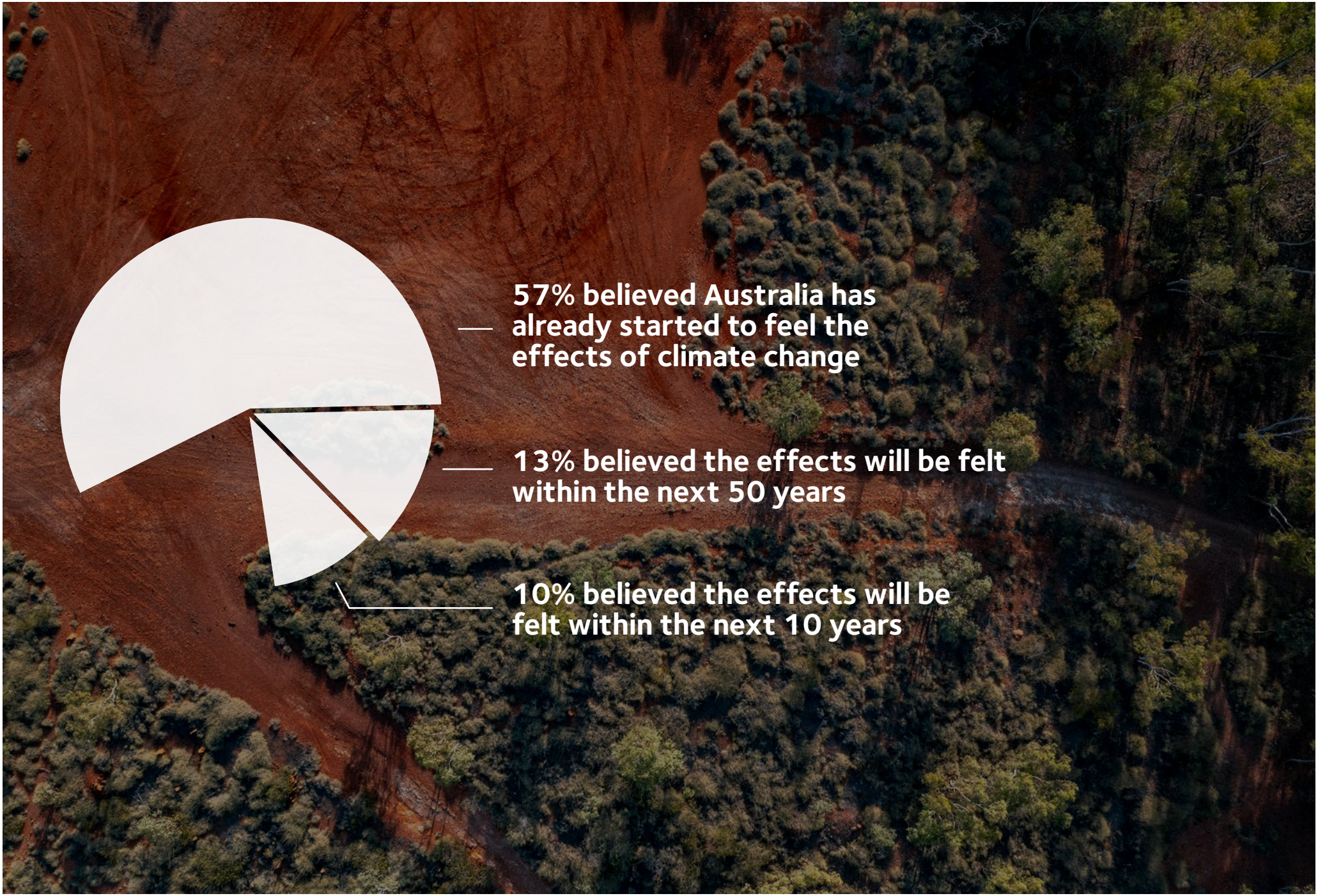
The sample comprised 3,915 Australian adults (51.1% female; 48.6% male; 0.03% non-binary or undisclosed). The mean age of participants was 46.5 years. Other sample characteristics included:

- 77% of respondents were born in Australia, and 92% are Australian citizens
- 2.6% of respondents identified as Aboriginal and/or Torres Strait Islander
- English is the main language spoken in the homes of 94% of respondents
- 80% live in urban locations, and 20% live in rural or remote locations
- 56% are parents
- educational attainment levels vary widely, with 29% educated to school-level only, 30% possessing technical, trade or college qualifications, and 41% university-educated
- approximately half of the sample work either full-time (37%) or part-time (14%)
- 68% report annual household (before-tax) incomes of $80,000 or less
- 40% are religious or identify with a religious faith
- most own their own home (29%) or are buying it with a mortgage or loan (27%), and most (88%) solely or jointly own one or more motor vehicles.

Table 1 shows the spread of this sample by gender, age, and the state of Australia. The distribution of survey participants by these three demographic factors closely matches the distribution in the Australian national population.

Table 1. Number of respondents by gender, age group, and the Australian state.

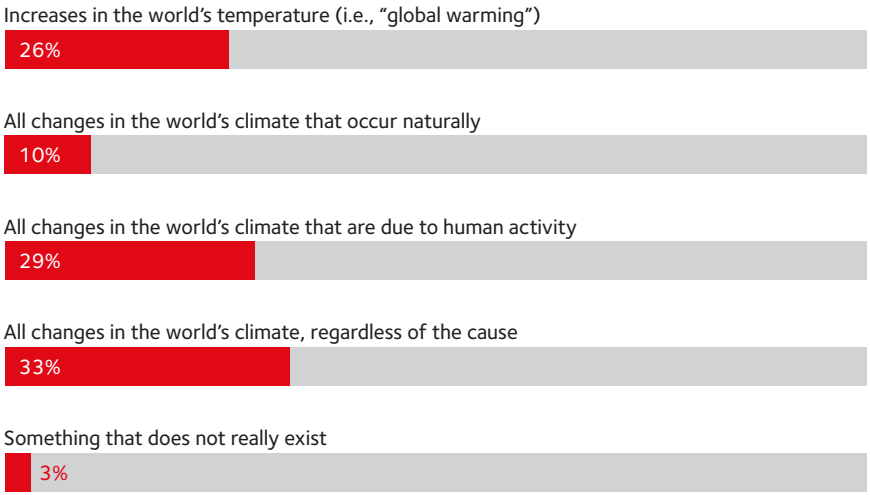
States of Australia	Women		Men		Non-binary / No response		Total (and %) by state
	< 40 years	≥40 years	< 40 years	≥40 years	< 40 years	≥40 years	
ACT	21	29	18	28	0	0	96 (2.5%)
New South Wales	242	374	242	346	3	1	1208 (30.9%)
Northern Territory	6	14	8	12	0	0	40 (1.0%)
Queensland	147	243	139	221	0	0	750 (19.2%)
South Australia	62	87	57	86	1	0	293 (7.5%)
Tasmania	21	38	20	33	1	0	113 (2.9%)
Victoria	206	309	199	275	4	1	994 (25.4%)
Western Australia	78	123	107	111	1	1	421 (10.8%)
Total (and %) by gender and age	783 (20%)	1217 (31.1%)	790 (20.2%)	1112 (28.4%)	10 (0.3%)	3 (<0.1%)	3915 (100%)


57% believed Australia has already started to feel the effects of climate change
13% believed the effects will be felt within the next 50 years
10% believed the effects will be felt within the next 10 years

Views and beliefs about climate change

A **FUNDAMENTAL QUESTION** addressed in the survey relates to the meaning people attach to the term 'climate change'. Respondents were asked: 'Which of the following definitions best captures your understanding of the meaning of the term "climate change"?'. The five options, and the percentage of respondents who endorsed each option, were as follows:

Respondents best definitions to capture the meaning of the term 'climate change'.



Clearly, not all respondents interpreted the term in the same way, with preferred definitions differing in scope and locus of causation.

A second fundamental question is: do Australian adults believe in the existence of climate change. Six items, located across different sections of the questionnaire, assessed belief in and acceptance of climate change to address this question. Combining their responses to these six items, 75 participants (1.9% of the sample) can be described as climate change *deniers* in that they answered five, or all six, of these items in a manner reflecting disbelief in climate change; 199 respondents (5.1% of the sample) can be described as climate change *sceptics* in that they answered either three or four of these items in a manner reflecting disbelief in, or doubts about, the existence of climate change; and 629 respondents (16.1% of the sample) may be regarded as *unconvinced* because they answered either one or two of these six items in a manner reflecting disbelief in, or doubts about, climate change. This 16% are not totally convinced about climate change, but nonetheless appear open to listening to arguments and responding to changes to their physical, economic and social environment—and hence can be termed 'complacent' in relation to their propensity for climate action. The climate complacent are overrepresented by respondents who are school only educated, aged over 55 years, are parents, are religious and reside in rural areas (especially in regional Queensland and Tasmania). They are unlikely to respond favourably to complex state-of-the-art scientific evidence, given the demographic profile. However, they may be persuaded by arguments couched in more conservative and traditional values as those associated with 'family, God, and country.' Most participants (3,012 people, 76.9% of the sample) consistently demonstrated acceptance of the reality of climate change.

Those who denied or doubted the existence of climate change tended to be: older, rather than younger; intending to vote for the One Nation Party or another conservative political party; less highly educated; religious, or identifying with a particular religious faith; residing in a rural (vs. urban) location; and living in a location that is relatively unaffected by natural disasters and extreme weather events. Denial and scepticism were more prevalent among males than among females, although the difference in raw scores was relatively modest. Strong climate change beliefs were most pronounced among students and among respondents who intended to vote either for the Australian Greens or the Australian Labor Party (hereinafter, shortened to 'Greens' and 'Labor').

Most respondents (57%) believed that Australia has *already* started to feel the effects of climate change, 10% believed that the effects will be felt within the next 10 years, and a further 13% believed that the effects will be felt within the next 50 years. Climate change risk perceptions were generally high, especially among respondents aged 35 years and under, students, intending Greens or Labor voters, and those residing in a home where English is not the main language spoken. Females perceived the risk of climate change to be higher than did males. Most respondents (71%) agreed that climate change is influencing the frequency and intensity of extreme weather events like heatwaves, cyclones and droughts, and disasters like bushfires and floods. Only 5% of respondents believed that Australia will never feel the effects of climate change.

A minority of the sample (19%–23%) either *slightly agreed, agreed,* or *strongly agreed* that climate change primarily affects regions that are at a geographical distance from their place of residence.

Twenty-two percent of respondents believed that climate change is an *extremely serious* problem right now. In contrast, 45% believed that it would be an *extremely serious* problem in 2050.

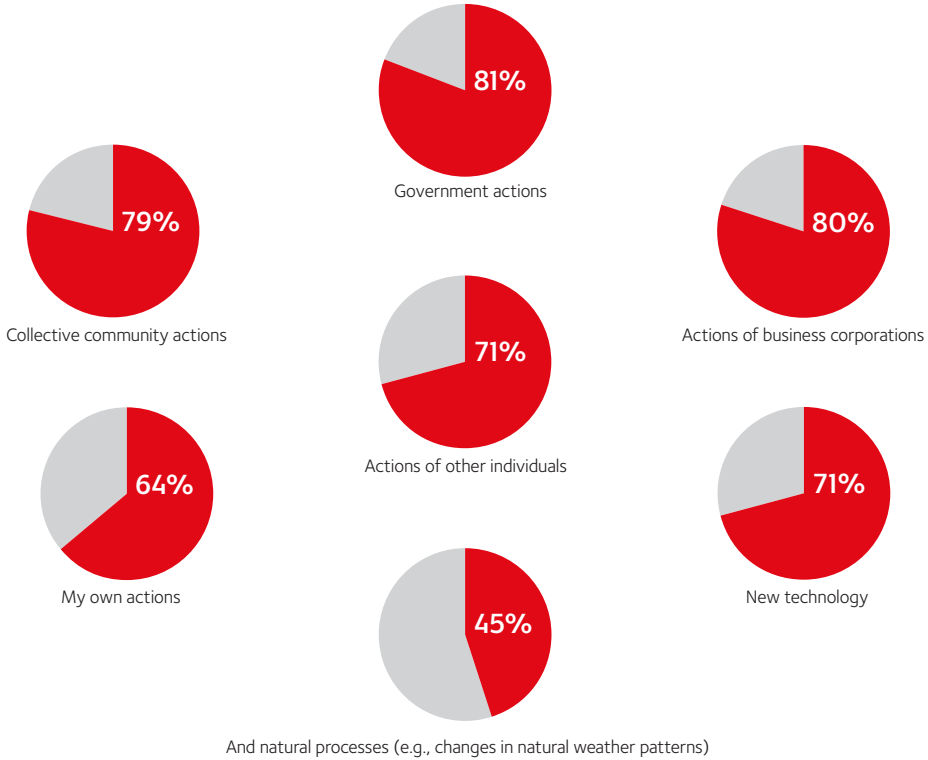
The majority (58–60%) of respondents rated climate change as either an *important, very important*, or *extremely important* issue for them personally. Moreover, most respondents (67%) believed that climate change should be either a *high, very high,* or *extremely high* priority for the Australian government.

Scores on the 5-item climate change 'issue importance' scale were relatively high among respondents aged 35 years and under, students, inner-urban residents, those educated to university level, those whose primary language spoken at home was not English intending Greens/Labor voters. Issue importance scores correlated positively with scores on other climate change beliefs and concerns scales.

The tendency to accept personal responsibility for causing climate change varied greatly, and was highest among the same sub-groups of the sample listed immediately above for the issue importance scale.

When asked how the problems of climate change can be solved, the percentages of respondents that thought the likelihood of a solution was *likely, very likely,* or *extremely likely* through each of these agencies can be seen below. These generally high percentages suggest that Australians are quite optimistic about solving the problems of climate change through human intervention.

Percentage of Australians who thought the likelihood of climate change solutions being found through various agencies.



Do people feel empowered and efficacious in their attempts to tackle climate change? Three types of climate change efficacy beliefs (self-efficacy[1], response efficacy[2], and collective efficacy[3]) were assessed in the survey. Responses suggested generally high levels of efficacy, especially among the same sub-groups of the sample as highlighted in relation to the other belief variables above.

Views about (or trust in) climate change scientists were generally positive, however, they were less so among respondents aged over 55 years, those intending to vote for one of the conservative political parties, and residents of rural regions.

Beliefs about what most other people in their social network do (i.e., local descriptive norms) showed the expected relationships with climate change-related beliefs, concerns, and behaviours. For example, respondents who held strong beliefs that most other people behave in pro-environmental ways also tended to have high scores for normative beliefs and personal norms, and to report high levels of psychological adaptation to the threat of climate change. The sub-group of the sample that reported the highest descriptive norm beliefs was that comprising people who resided in a home in which English was not the main language spoken. Also reporting strong descriptive norms were respondents who were university-educated, inner-urban residents, students, intending Labor or Greens voters, and respondents born overseas.

Normative beliefs (i.e., beliefs about what significant other people would want us to do) were also positively correlated with scores on scales measuring climate change-related beliefs, concerns, and pro-environmental behaviours. Sub-groups of respondents who reported particularly strong normative beliefs closely matched the sub-groups that reported strong descriptive norms.

Do people feel under pressure to adopt particular views about climate change? Responses to items assessing 'psychological reactance'[4] suggest that up to one-third of respondents feel this way. Groups of respondents that scored relatively high on this scale included males, those who describe themselves as religious or as identifying with a particular religious faith, and those intending to vote for one of the conservative political parties.

[1]Self-Efficacy. Derived from Social Cognitive Theory within psychology (e.g., Bandura, 1997), (perceived) self-efficacy refers to beliefs in one's capacity to perform required or desired actions. Climate change self-efficacy thus refers to a belief that one has the capability to organise and execute actions that are intended to contribute to the mitigation of, and/or adaptation to, climate change. Refer: item D24.

[2]Response Efficacy. Response efficacy (also known as perceived instrumentality) refers to a belief that one's actions will have known (and usually, desirable) outcomes. Climate change response-efficacy thus refers to a belief that one's actions will facilitate climate change mitigation and/or adaptation. Colloquially, that one's actions will have the desired effect. (Spence et al., 2010). Theories such as Witte's (1992) Extended Parallel Processing Model (EPPM) specify that motivation to take action against a threat (like climate change) is determined by the actor's 'perceived efficacy', a concept that includes both self-efficacy and response efficacy. Refer: item D25.

[3]Collective Efficacy. Perceived collective efficacy refers to a group's shared belief in its joint capability to organise and execute desired courses of action (Bandura, 1997). Climate change collective efficacy thus refers to a group's (or other collective's) beliefs in its ability to deal effectively with the threat and reality of climate change.

[4]Psychological Reactance. Stemming from the work of Brehm (1966), psychological reactance refers to a defensive or oppositional response brought on by a perception that others are limiting or threatening one's freedom. In the climate change context, this could take the form of people stubbornly opposing or resisting messages that they see as forcing a particular view on them.

Knowledge and information about climate change

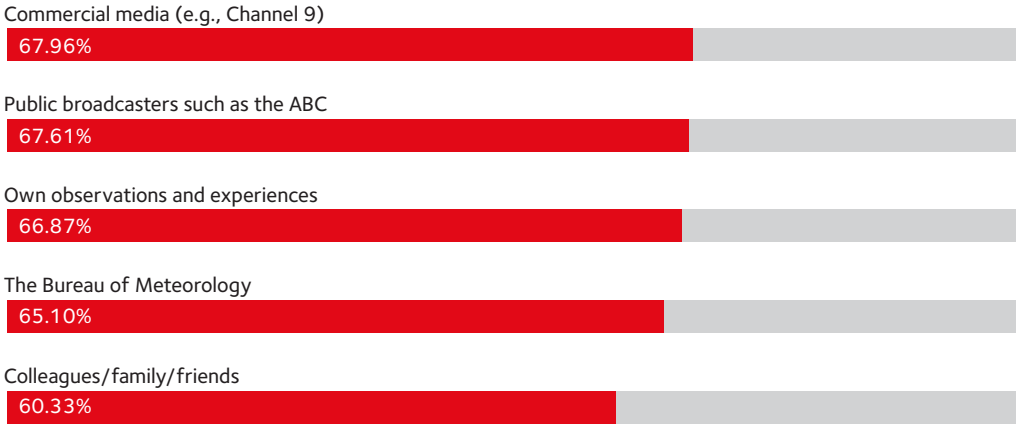
MOST RESPONDENTS displayed only a modest amount of objectively-tested knowledge of climate change causes, impacts, and responses. After granting a point for correct answers, and subtracting a point for incorrect ones, the average test score out of 13 was 5.6. On two items, correct responses occurred at little higher than chance level. The sub-group of the sample that scored highest on objective knowledge comprised those who claimed to have personally experienced a change, circumstance, or event that they attributed to climate change. Relatively high levels of climate change knowledge were also evident among university-educated respondents and intending Greens or Labor voters. Respondents who resided in inner urban areas, and those who self-identified as belonging to one of five 'minority' or 'marginalised groups, also scored relatively high on the knowledge test. Gender and age differences were modest. Differences based on the main language spoken at home were not consistent across the knowledge items.

Self-rated knowledge of climate change was moderate (average rating of 3.4 on a 6-point scale for knowledge of the *causes* of climate change, 3.5 for knowledge of the *consequences* of climate change, and 3.3 for knowledge of *effective responses* to climate change). The modal response to items asking 'how much do you feel you know' in each of these spheres was *a little* (rather than, for example, *virtually nothing* or *quite a lot*). Total self-rated knowledge was positively correlated with objectively assessed knowledge of climate change. Groups of respondents who tended to rate their knowledge as high included those whose main language spoken at home was not English, those who were university-educated, those intending to vote for the Greens or Labor, inner-urban residents, and students.

Presented with 28 possible sources of information about climate change, the sources that respondents reported most often accessing for this information were (in order from the source accessed by most respondents): commercial media (e.g., Channel 9), public broadcasters such as the ABC, own observations and experiences, the Bureau of Meteorology, colleagues/family/friends, scientists and scientific publications, State government, Federal government, and mainstream newspapers. In addition to these sources, a majority of respondents reported accessing information about climate change in part through environmental organisations (60% of respondents obtained some of their climate change information through this source), films and documentaries other than those viewed on television or online (55%), social media (53%), and local and community radio (51%).

When the five most popular sources listed above were compared with age groups, a general trend emerged that older respondents (over 60) accessed them more than the younger (under 30) participants. The younger ones tend to follow the independent media, mainstream international newspapers and news sites or the Indigenous media (e.g., NITV), as well as digital and social media sources more than the older respondents.

Australia's top 5 sources of information on climate change.



Australia's most trusted sources of information on climate change.

1 Scientists, and scientific research journals / publications

2 Bureau of Meteorology/ meteorologists

3 Specialist government providers of climate change information (the CSIRO, the Climate Council)

4 Expert panels/advisory groups, such as the Great Barrier Reef Expert Committee, etc.)

5 Environmental organisations (Greenpeace, World Wildlife Fund, Australian Marine Conservation Society)

Open-ended questions probed for more details of the information sources used. Responses included the following:

"I follow scientists on TikTok who seem to give pretty accurate info with sources."

"Major online news websites such as The Daily Mail, News.com.au or ninemsn."

"Influencers talk constantly about environmentally friendly products while reviewing them, that's how I knew and became aware of all of these things on social media."

"I only believe the information from my government, I don't believe the protesters and that."

"I definitely don't use Facebook for my higher education."

The most trusted sources of information about climate change were (from most trustworthy, in descending order): Scientists, and scientific research journals/publications, the Bureau of Meteorology/meteorologists, Specialist government providers of climate change information (the CSIRO, the Climate Council), Expert panels / advisory groups, such as the Great Barrier Reef Expert Committee, etc.), Environmental organisations (Greenpeace, World Wildlife Fund, Australian Marine Conservation Society), own observations and experiences, lectures/ formal education, and church or religious leaders. The three sources least trusted were politicians, social media feeds and the Australian federal government.

When the extent of trust among the five most trusted sources was compared with the age of respondents, a general u-shape trend revealed that younger and older respondents displayed higher trust than the 45–59-year-olds.

Indicative comments regarding the trustworthiness of sources of information about climate change included:

"You can't trust anything fully but I trust the scientists more than anyone else."

"Total confidence in CSIRO. Lost faith in commonwealth governments because of their zero commitment."

"I have a high level of trust in the verifiable data presented by acknowledged experts."

"I don't trust mainstream media or the government."

"Climate change information is only distributed by Greenies and people who do not know the whole truth and are scaremongering."

Feelings about climate change

Most respondents reported being either fairly (39%) or very (33%) concerned about climate change.

Prevalence of being fairly or very concerned (combined) tended to be higher among intending Greens (96%) and Labor Party (84%) voters than among intending Liberal (59%), National (54%), and One Nation (42%) Party voters. Concerns were also relatively high among students, respondents who resided in a home in which English was not the primary language spoken, those aged 35 years and under, and those who self-identified as belonging to one or more of five 'minority/marginalised' groups.

Presented with 17 natural or human-made phenomena, we can report concern about threats to self, family or local environment in the foreseeable future (see figure).

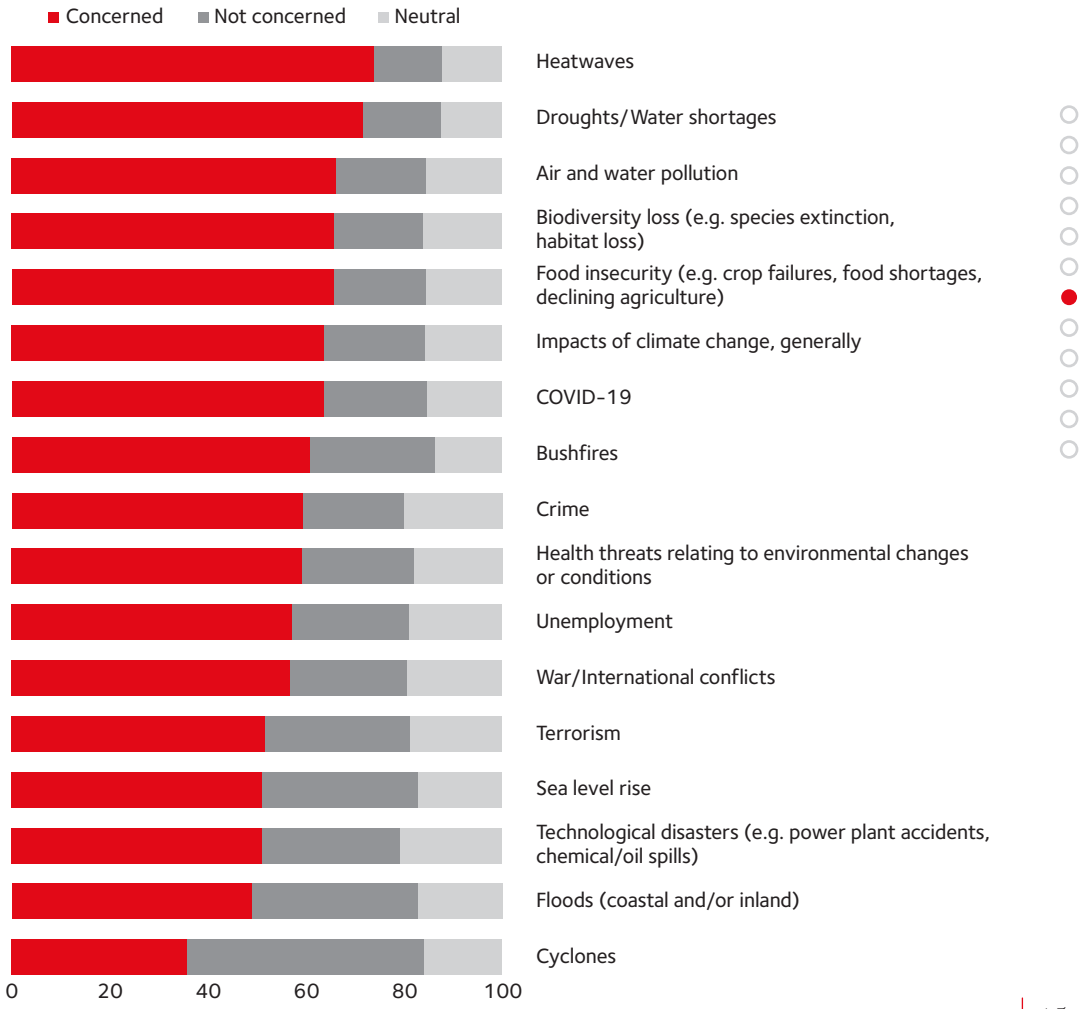
When asked in an open-ended question to name their biggest concern about climate change, the most common responses ranged from natural disasters and extreme weather events (e.g. bushfires, droughts, sea-level rise), through public apathy and government inaction, to human and social problems (e.g. food shortages), civil unrest and societal breakdown. A minority of responses pertained to perceived problems associated with excessive climate activism. Examples of responses were:

"Impact upon general wellbeing of life on Earth. Loss of species and biodiversity. Disruption to plant pollination. Concern for my children, grandchildren and their successors. Breakdown in society and mental health."

"Feeling very unsafe and vulnerable to extreme weather conditions, being cut off from road access, lack of access to food and medical treatment, my house being damaged or destroyed, being unable access house insurance or afford to renew an impossibly high policy."

"Misinformation being espoused by radical elements and taken up by the media without scientific evidence."

Reported concern about threats to self, family or local environment in the foreseeable future:



Were respondents more concerned about climate change or COVID-19? In response to one item, the same percentage (63.6%) of people reported being concerned about both. In response to other items, 72% expressed concern over climate change, whereas 80% expressed concern about COVID-19.

A minority of respondents (between 41% and 45%) agreed with four items about feelings of either *distress*, *upset*, *anxiety*, and *being overwhelmed* due to climate change. A higher proportion (59%) agreed with an item about being *worried*, while a lower proportion (35%) acknowledged feelings of *guilt*. Responses to these six items were combined to form a composite climate change distress scale, with scores on this scale particularly high among students, respondents aged 35 years or under, and intending Greens and Labor voters.

The Climate Change Distress Scale: self-reported feelings and emotional states in response to climate change.

59% Worried

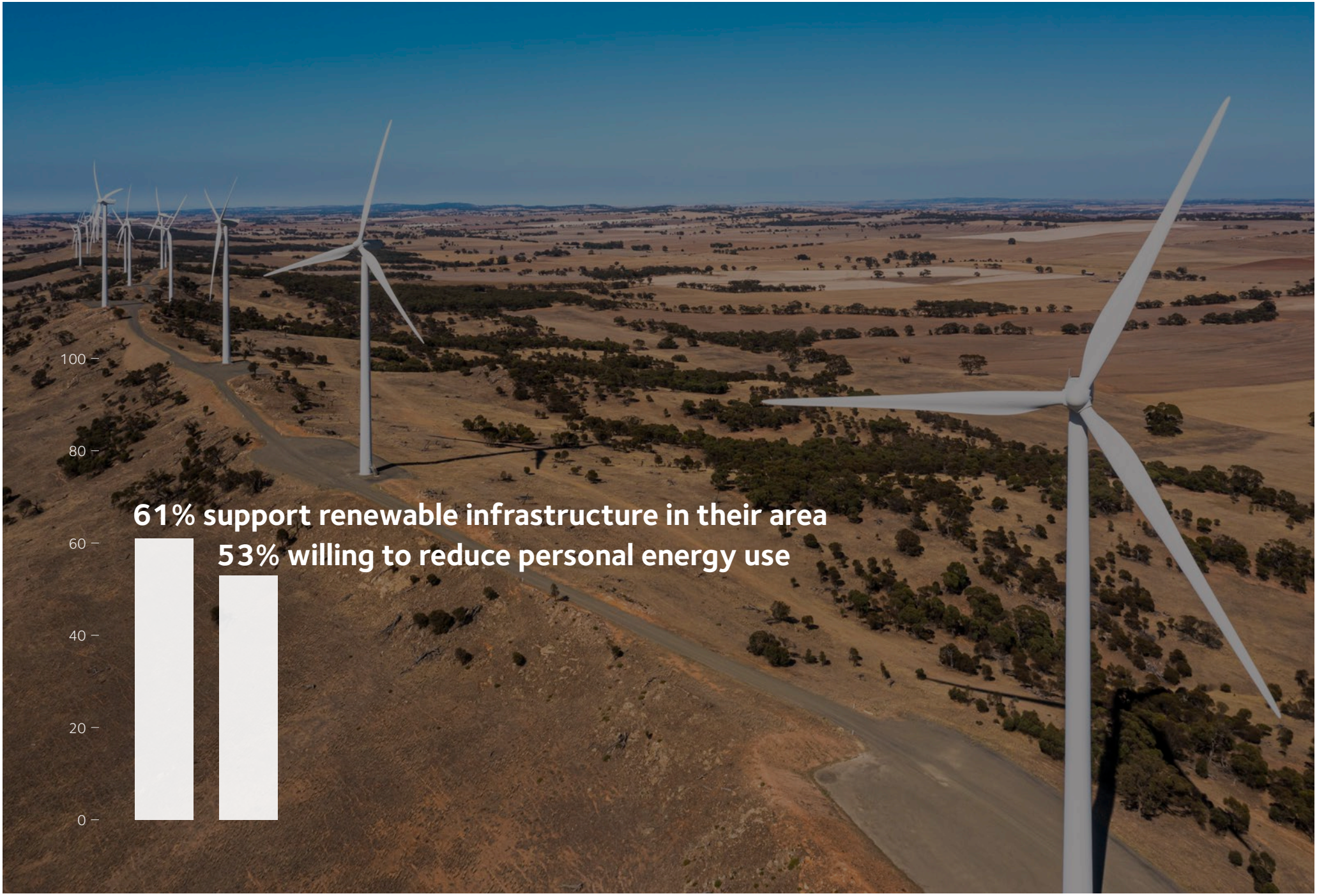
35% Guilty

45% Distressed

41% Upset

41% Anxious

41% Overwhelmed


100
80
60
40
20
0
61% support renewable infrastructure in their area
53% willing to reduce personal energy use

Responses to climate change

A MAJORITY OF RESPONDENTS regarded climate change as an important consideration when deciding how to vote in the next federal election. Sixty percent of respondents rated it as *important*, *very important*, or *extremely important* (versus *not at all important, of little importance, somewhat important*, and *not applicable/not voting*), but this percentage varied by preferred political party: Australian Greens (90%), Australian Labor Party (72%), Liberal Party (45%), National Party (54%), and One Nation Party (33%). This percentage difference between intending National Party and Liberal Party voters is noteworthy.

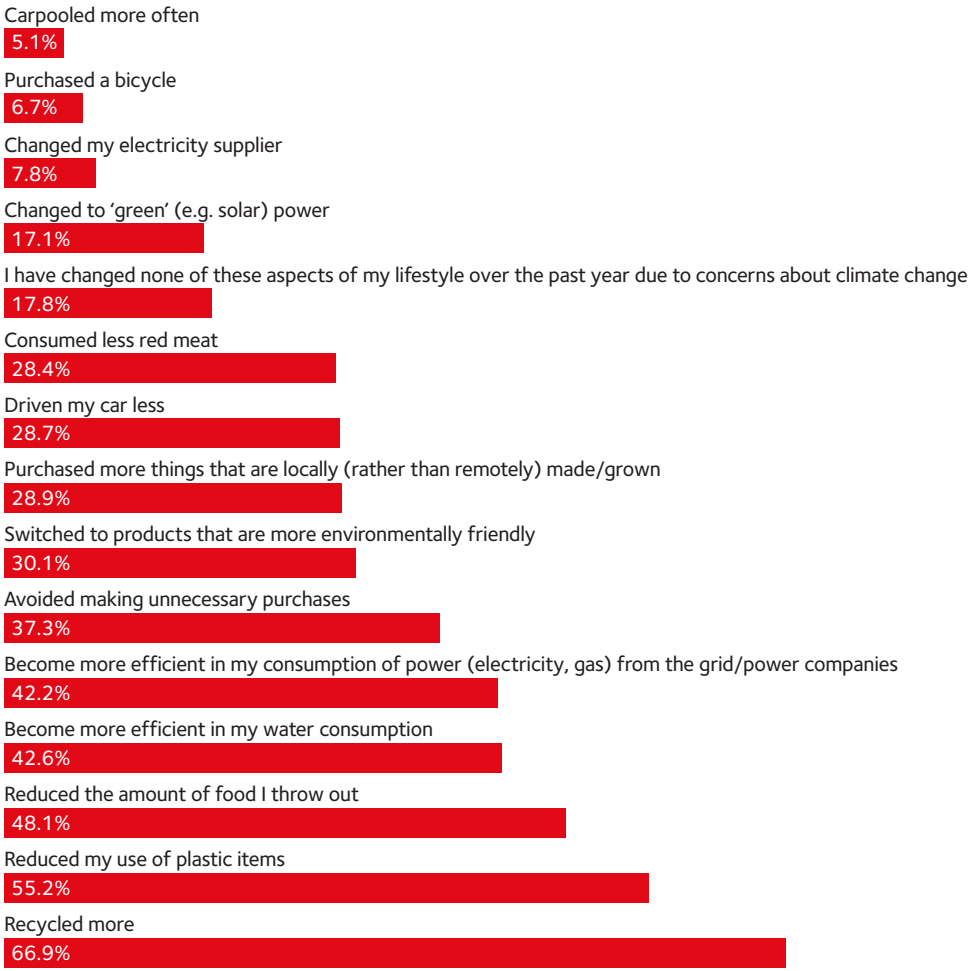
A 4-item scale assessed the strength of respondents' personal norms (i.e., their felt personal responsibility to take action against climate change). As is the case with many other climate change variables, respondents who reported a strong personal norm tended to be younger, students, inner-urban dwellers, university-educated, intending Greens or Labor voters, and/or residents in homes in which English was not the main language spoken.

Beliefs in, and concerns about, climate change tended to vary in predictable ways with political affiliation. Of note, mean levels of concern tended to be higher among intending National Party voters than intending Liberal voters, and the prevalence of recent *increases* in levels of concern about climate change was higher among intending National Party voters (43%) than among intending Liberal voters (33%).

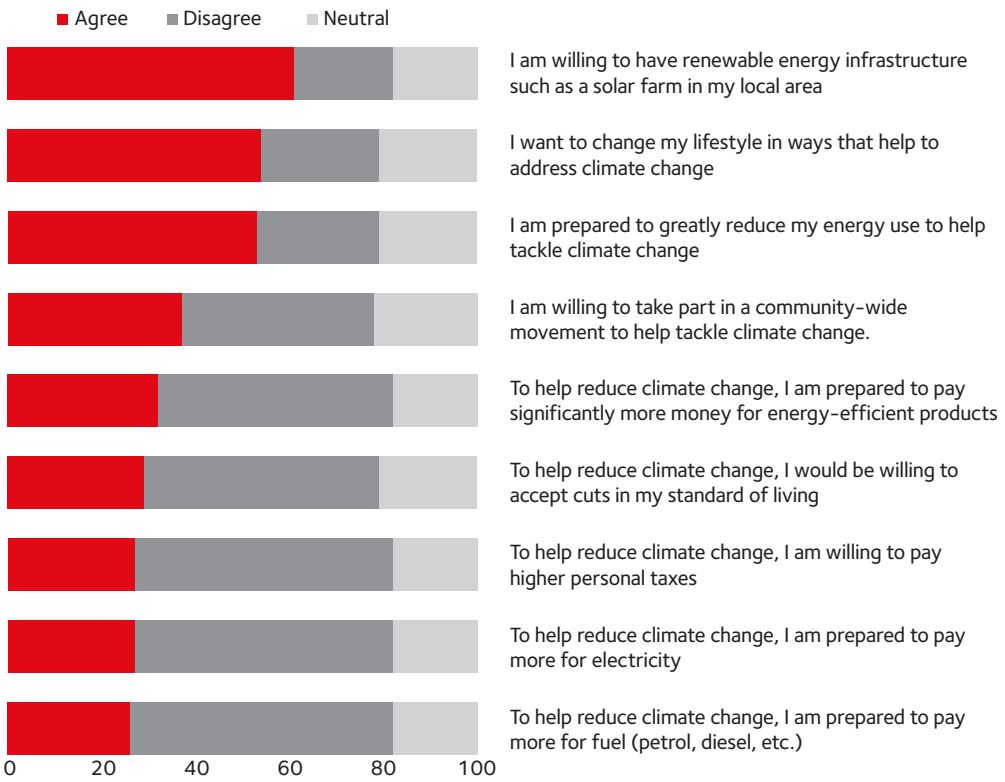
When asked about the likelihood, they would engage in six different types of climate change activism if a liked and respected friend asked them to do so, between 25% and 45% of respondents indicated they would or would definitely do so. Again, younger respondents, students, and intending Greens or Labor voters most often reported that they would engage in these types of activities.

A 9-item behavioural willingness scale assessed the extent to which respondents were prepared to make lifestyle changes and financial commitments to support climate action. Willingness varied depending on what was being asked of them. The findings suggest that Australians would generally be willing to make changes to their

Which of the following aspects of your lifestyle, if any, have you changed over the past year primarily because you wanted to reduce your impact upon climate change?



Willingness scale concerning responses to climate change.



lifestyle or support initiatives that focused on government or private sector-led responses like renewable infrastructure in their area (61%) or to take actions like reducing personal energy use (53%). The data also suggests that individuals would be unwilling to support initiatives or make changes that would result in higher personal taxes (55%), higher fuel and electricity costs (56% and 55%) or pay significantly more for energy-efficient products (50%).

Faced with the threat of climate change, people have to psychologically adapt (i.e., make cognitive, emotional, and behavioural changes to accommodate this reality). Respondents who claimed to be adapting in these ways tended to be younger, students, inner-urban dwellers, university-educated, intending Greens or Labor voters, and/or residents in homes in which English was not the main language spoken.

An open-ended item asked: 'How, if at all, has your experience of COVID-19 affected how you feel and think about climate change?' Illustrative responses are:

"It has made it easier to travel less, drive less and consume less. It has also made me more conscious about purchasing locally/ Australian made goods to support our economy which has a positive impact on climate change."

"It gives you more time at home therefore more time to think about the planet and the changes that are happening."

"Less willing to engage in pro-environmental behaviours that cost more as I have had to take a significant reduction in pay due to lockdowns need to go for the cheapest options rather than most environmentally friendly."

Lifestyle and social milieu

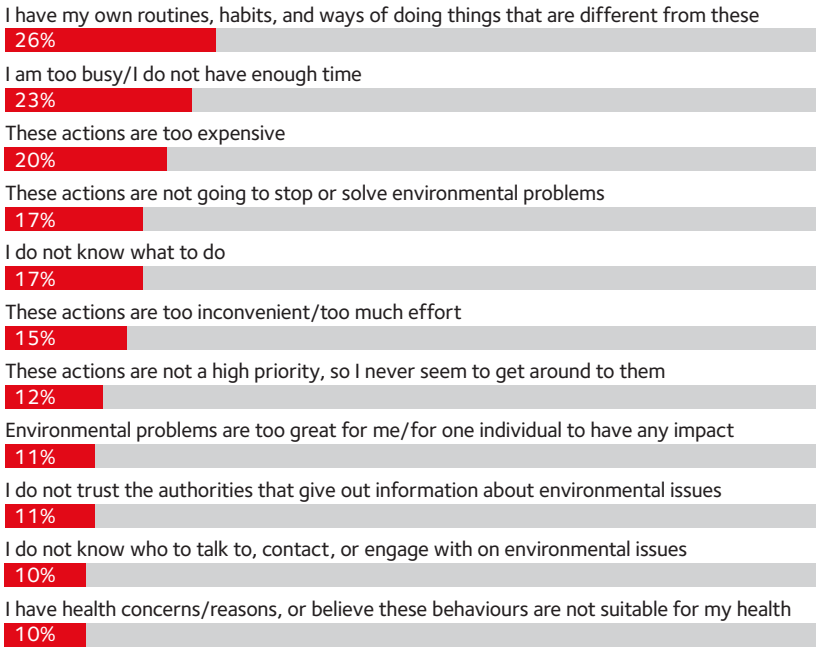
THE MAJORITY of respondents (71.5%) reported that their health was either OK or good, and the majority (72.8%) indicated that they had either not quite enough free time or plenty of free time. These trends could suggest that most respondents had sufficient supply of two major resources – health and time - that are necessary for climate action.

Respondents reported varying levels of involvement in local community groups or clubs. Those with higher involvement tended to be aged 35 years or under, from a home where a language other than English is mainly spoken, religious, university-educated, currently studying or full-time employed, residing in an inner urban area, and/or of better than average health. Greater community involvement tended to be positively correlated with self-reports of a pro-environmental lifestyle.

Respondents claimed that they engage in an average of 5.5 of 16 pro-environmental behaviours (e.g., using public transport, carrying re-usable drink containers, signing environmental petitions). On average, 3.0 of these 16 behaviours were reportedly performed at least partly because of environmental concerns (with the remaining 2.5 (on average) performed for other reasons).

Compared to relevant other groups, high numbers of these pro-environmental behaviours were reportedly performed by respondents who were currently studying (average number of behaviours performed = 6.6 out of 16), those aged 35 years or under (6.2), the university-educated (6.2), intending Greens/Labor voters (6.2), and/or inner urban residents (6.2). Performing a high number of these behaviours was positively correlated with most other measures of climate change belief, concern, and action.

Most frequently cited reasons for not engaging in environmentally friendly behaviours:



Thus, these eleven reasons for climate *inaction* (or barriers to climate action) were all cited by at least 10% of the sample.

Substantial proportions of respondents expressed interest in adopting five environmentally-friendly actions in the future. For example, 55% expressed future interest in installing a home solar battery system, and 47% were interested in getting an electric or hybrid vehicle. Those who were more interested in taking these kinds of actions tended to be students or employed full-time, aged 35 years or under, university-educated, residing in a home in which English is not the primary language spoken, and/or intending to vote for the Greens of Labour party.

Twenty-nine percent of respondents indicated that they would pay no more for an environmentally friendly appliance than they would for a less environmentally friendly alternative. In contrast, many respondents claimed that they would pay either 5% more (20%) or 10% more (33%) for the 'eco' appliance. The remaining 18% of the sample reported a willingness to pay between 10% and 100% more.

Forty-five percent of respondents thought that their level of engagement in pro-environmental behaviours was about the same as that of the average Australian; 36% believed that their level of engagement was below the national average, and only 19% believed that they were above the average. These percentages suggest that the current sample was not overly

represented by individuals who self-identify as environmentalists ('greenies').

Motor vehicle ownership was modestly and negatively correlated with climate change beliefs, concerns, and actions. For example, the percentage of respondents who reported being fairly or very concerned about climate change varied from 82% for those who own at least one electric or hybrid vehicle and 78% for those who do not own any vehicles, to 72% for those who own at least one 4-cylinder petrol or diesel vehicle and 67% for those who own at least one 6-cylinder or larger petrol or diesel vehicles.

High levels of 'place attachment' were found in several sub-groups of the sample: those who self-identified as being religious, those who were in good or very good health, those aged 55 years or over, those whose main language spoken at home was not English, parents, and home-owners. However, contrary to expectations, place attachment was not strongly or consistently associated with climate change views, feelings, or responses. For example, younger, educated people tend to report stronger climate change attitudes and actions, and these people tend to be more geographically mobile and less place attached.

Many home-owners (58% of the 2,226 members who either owned their own home or were buying it with a loan/mortgage) reported modifying their home in the preceding five years to better adapt to extreme weather and natural disasters. Twenty per cent of home-owners claimed to have made three or more of the seven possible home modifications listed.

Members of minority/marginalised/disadvantaged groups were asked whether they, and/or the community with which they identify, face any particular challenges to taking action against climate change. Responses included:

"Nothing in particular. The community in which I live is very vocal and proactive about climate change."

"High rates of poverty reduce how much people can spend on environmentally friendly products."

"Yes, my disability and long term illness make it hard for me to recycle things so I need to leave it up to my wife and daughter to do it."

"Climate change directly affects vulnerable populations greater than others, and I am a disabled person living on a very low income, like many people in my country we're ignored."


52%
Respondents experienced extreme weather or natural disaster event
2% had been injured
19% had suffered financially

Experiences of extreme weather, natural disasters, and perceived manifestations of climate change

THIRTY-ONE PERCENT of respondents had personally and directly experienced at least one extreme weather or natural disaster event (e.g., an extreme heatwave, a cyclone, bushfire, drought, flood) in the preceding year, and 47% had done so prior to the preceding year. Taken together, 52% of respondents had experienced such an event at some point in their life. Of the 2,053 respondents who had ever experienced such an event, 2% had been injured and 19% had suffered financially, in their most recent of these experiences. Eleven percent had suffered considerable, major, or an extreme amount of property damage due to such an event.

Respondents who had experienced at least one natural disaster or extreme weather event, and those who had not experienced any such events, differed on all the climate change variables except psychological reactance and place attachment. For example, those who had experienced expressed greater concern and distress about climate change. They were more likely to support government action to combat climate change, and they were also more likely to engage in pro-environmental actions. The largest difference between those who had, and had not, experienced such events was in respect of perceived residential exposure to these events. The between-group differences were evident regardless of whether the experience/s of extreme weather and natural disasters occurred more or less than one year prior to the time of survey completion.

A substantial minority of respondents (43%) agreed that some particular 'distant' natural disaster or extreme weather events had impacted them, even though they did not directly experience these events. When asked why these distant effects had such an impact, the most common responses referred to feeling sympathy for those directly affected, feeling distressed for the environmental destruction/damage, and feeling sympathy for the animals impacted. These three responses were each endorsed by more than one-quarter of the sample, and by almost three-quarters of those indirectly affected by distant events.

Twenty-nine percent of respondents answered in the affirmative the question 'Has any particular event/s or experience/s altered your views about the seriousness of climate change?'. When invited in an open-ended question to elaborate, the most common response referred to the 2019-2020 bushfires. However, many respondents cited floods, droughts, and other natural disasters, or anthropogenic events such as the bleaching of the Great Barrier Reef. Media (e.g., television) coverage of all these events was also commonly cited. Examples of responses are:

"Fires in Australia made me aware of how climate change is permanently changing the world."

"Winter is a lot warmer than it used to be."

"I used to be a climate skeptic, but over time I became convinced of the science of it through various means (videos, documents etc) and thus changed my views. I now know climate change is real and is caused largely by human activity."

Twenty-four percent of respondents reported having directly experienced, in the preceding year, an environmental or climatic change, circumstance, or event that they thought was due to climate change and 31% had done so prior to the preceding year. Together, 35% of respondents claimed to have experienced such an event at some point. Specific examples of such changes, circumstances, and events include bushfires, floods, cyclones, storms, drought, more subtle seasonal changes, and many others. Illustrative responses are:

"Flora flowering either early or late birds nesting early or late."

"I went scuba diving and I saw the reefs that were getting destroyed by climate change."

"I was involved in fighting the bush fires over the past 18 months."

"No longer need anything to heat the house in winter. Growing up, the winters were much colder."

Respondents who had experienced changes, events, or circumstances that they attributed to climate change scored higher on all climate change variables except spatial distance of climate change, psychological reactance, and place attachment.

Asked whether they thought they, or their family, had been harmed by circumstances or events that they believed were related to climate change, most respondents (68%) thought that they/their family had been harmed to some extent, with only 32% indicating that they/their family had not been harmed at all.

Of the full sample, 41% had never directly experienced either (1) an extreme weather event / natural disaster or (2) an event or circumstance that they attributed to climate change; 28% had experienced both these types of events, 24% had experienced an extreme weather / natural disaster event but not an event or circumstance attributed to climate change; and 7% had experienced an event or circumstance attributed to climate change, but not an extreme weather/natural disaster event.

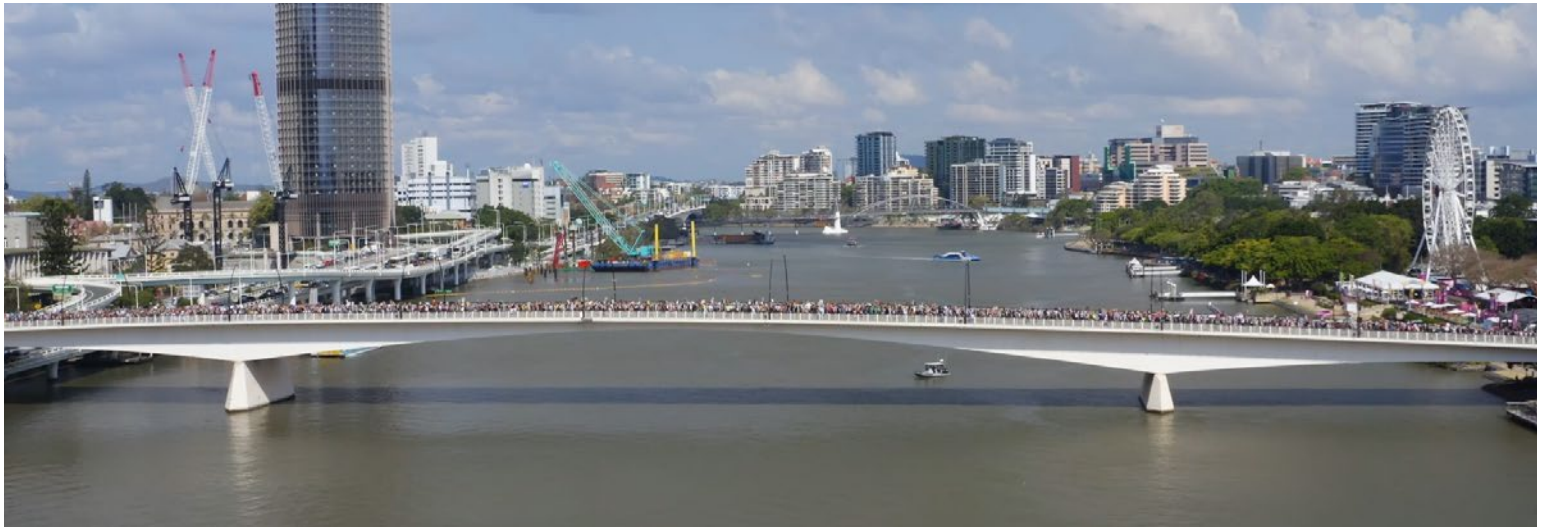
Perceived vulnerability of their place of residence to the adverse effects of extreme weather and/or natural disasters and/or climate change was especially strong among those who had previously experienced such events. Also reporting high levels of perceived residential vulnerability were rural residents, members of minority/marginalised groups, and intending Labor/Greens voters.

Several questionnaire items probed the effects of climatic and disaster events on respondents' use of insurance. 52% of respondents indicated a willingness to move home if their current residence was deemed to be uninsurable due to its exposure to the risk of flooding, bushfires, or other natural disasters.

Worldviews, and opinions on social, political, and environmental issues

THE QUESTIONNAIRE contained a 3-item scale measuring how people think of themselves as having a 'green' identity. As expected, acceptance of this identity was positively correlated with greater acceptance of climate change, greater concern for its impacts, and living a more pro-environmental lifestyle.

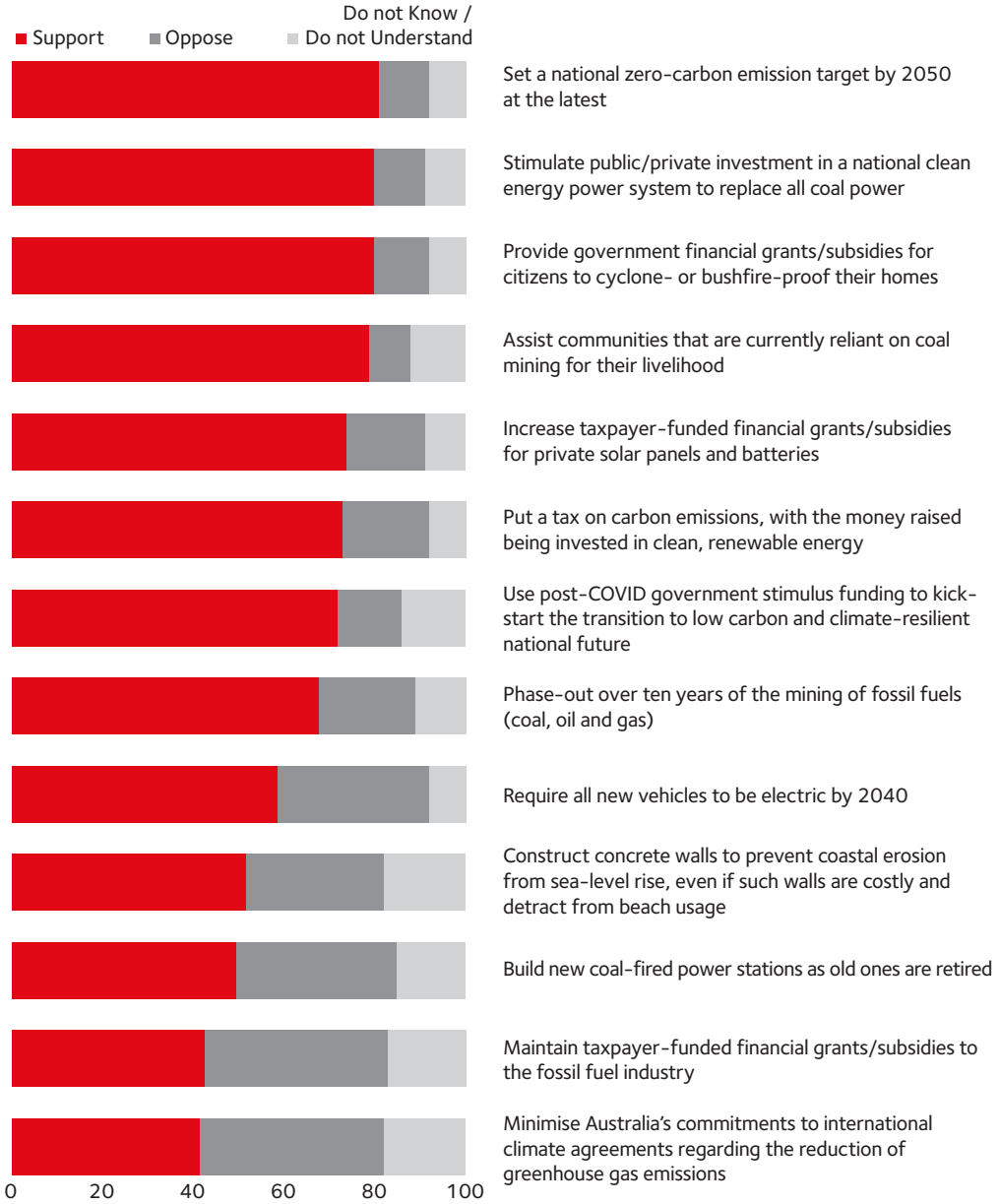
Respondents were asked about the extent to which they supported the 'New Ecological Paradigm', a view of the world that acknowledges the need for humans to live in harmony with nature. Endorsement of this worldview was positively associated with intending to vote Greens or Labor, not being religious, being a member of a 'minority' or 'marginalised' group, and, to a lesser extent, being female, not being a parent, and being a student. Respondents who strongly held this worldview tended to: be very concerned about climate change, regarding the issue as highly important, and report living an environmentally-friendly lifestyle.



When considering government policies, support for ten pro-climate action policies was quite strong. The findings show that there is support from the majority of respondents for policies regarding future energy sources (e.g., restricting the construction of new coal-fired power stations), imposing a price on carbon, facilitating the uptake of electrical vehicles, and assisting those whose livelihood is threatened by the shift away from fossil fuels. In contrast, sizeable minorities favoured policies that could be described as environmentally 'unfriendly' which included building new coal-fired power stations as old ones are retired and minimising Australia's commitments to international climate agreements regarding reducing greenhouse gas emissions.

Support for pro-environment policies was relatively strong among students, respondents intending to vote for the Greens or Labor, those residing in homes in which a language other than English was mainly spoken, and those aged 35 years or under. Consistent with their voicing of support for climate-friendly policies, these respondents also reported high levels of climate change

Reported extent of support or opposition to the following initiatives if the government propose them as policies.



concern, issue importance, and willingness to take climate action.

All political parties were represented in the sample. Beliefs in, and concerns about, climate change tended to vary in predictable ways with political affiliation, from supporters of the Australian Greens (who had the strongest beliefs and greatest concerns), to supporters of Labor, Liberal/National, and One Nation parties. Of note, mean levels of concern tended to be higher among intending National Party voters than intending Liberal voters, and the prevalence of recent increases in levels of concern about climate change was higher among intending National Party voters (43%) than among intending Liberal voters (33%).

A final question in the survey asked: Is there anything else you would like to say about your views on climate change or natural disasters?" Responses varied widely, for example:

"Due to my age, I do not think that climate change will have a serious impact on me. My concern is for the next generations, not just in Australia, but worldwide. Lack of forward-thinking and action by the Federal Government is disgusting."

"It is a threat to the survival of life on this planet."

"It is pointless to worry about climate change in Australia when we are a literal blip compared to China's population and consumption. I believe in climate change and I think it's horrible, but there's nothing we can do."

"I'm a conservationist, and an animal rights advocate. I see the overfishing of the oceans. I'm aware of the negative impact humans have on the world. But I see the whole climate change issue being used as a tool to coax gullible people into accepting radical change, and not change for their wellbeing."

"Climate change isn't real."

"I just think right now the government, and we the public have far bigger fish to fry than climate change issues."

"It's a confusing topic, we need more reliable education on it."

"Thank you, I just wish there was a way to cut through the misinformation and apathy so many people have."

"Good survey, keep spreading the good word for a better world."

Conclusions

THIS SURVEY SHEDS LIGHT ON Australians' understandings of and responses to climate change. The survey is distinctive in several ways. For example, more so than most past surveys:

- The current study included measures of constructs that are of theoretical significance (e.g., risk perception, self-efficacy and response efficacy, psychological reactance, new ecological paradigm, personal norms, normative beliefs, place attachment, climate change activism)
- Many variables, especially those that are complex and multi-faceted, were measured by validated multi-item scales
- Climate action/behaviour of many kinds was examined
- Sources of information about climate change were probed
- Data relevant to climate justice for members of marginalised groups within society were collected
- The effect of COVID-19 on climate action was examined.
- Emphasis was placed on potential barriers to, and drivers of, climate action including time use, objective knowledge, normative beliefs, different types of efficacies, trust in sources of information, and psychological adaptation

The study is also different from, and superior to, most past surveys in its planned multi-wave (longitudinal) design.

In total, the survey involved the collection of nearly 400 bits of information from each of 3,915 respondents. This report describes findings from a modest selection of the many analyses that could be performed. In this context, three main findings are reiterated:

1 A clear majority of survey respondents—and, by extension, the majority of adult Australians – accept that climate change is real, are concerned about the harm it is causing, are in favour of government action to mitigate the threat it poses and are taking action themselves to tackle the problem. Notwithstanding the numerical strength of this majority group, the survey also identified a minority (perhaps around 7%) of respondents who voiced disbelief in the existence of, and the threat posed by, anthropogenic climate change.

2 In general, the 30+ climate change variables measured in this survey were shown to be highly inter-correlated. That is, people tended to respond inconsistently 'positive' or consistently 'negative' ways in response to questions about climate change knowledge, beliefs, norms, concerns, efficacy, and indices of climate action. The major exceptions to this generalisation were in respect of place attachment and perceived spatial distance of climate change, neither of which was consistently linked to the other climate change constructs.

3 Across this wide range of climate change variables, a distinct profile emerged of the most climate change-concerned and climate change-active respondents. Specifically, sub-groups of the sample displaying high levels of concern and activity were: respondents aged 35 years or under, university-educated respondents, those currently studying, inner-urban residents, people residing in homes in which English is not the primary language spoken, respondents intending to vote for the Greens or Labor Party, and those who have had prior experiences of extreme weather, natural disasters, and/or perceived manifestations of climate change. Women reported being more concerned and more active than did men. Older people, rural residents, and school only educated respondents tended to be the most climate change sceptical, unconcerned, and inactive. Income was one of the few demographic variables that did not strongly differentiate between those with high and low levels of engagement in the issue of climate change.

Compared with findings from previous comparable studies conducted in 2010 and 2011 (see Reser et al., 2012a, 2012b, details in technical report). The results of this survey suggest that Australians in 2021 are more accepting of, and more concerned about,

climate change than they were a decade earlier with an increase from 74% to 83% of respondents answering in the affirmative to 'Do you think the world's climate is changing?' and a significant increase from 35% to 72.5% of Australians indicating that they were *fairly* or *very* concerned about climate change.

The survey findings can be used to pinpoint climate change phenomena that are suitable for targeted interventions of several types. For example, the findings identify government policies for which there is, and is not strong community support. This knowledge can be used to make decisions regarding the manner and timing of the introduction of these policies. The study also shows that both normative beliefs (i.e. beliefs about what significant other people would want us to do) and descriptive norms (i.e., beliefs regarding what other people in our social network are actually doing) are positively correlated with self-reports of climate action, suggesting that social influence interventions can be applied to shift climate-relevant attitudes and behaviours. These interventions could take many forms. They could, for example, involve the presentation of social norm information, draw attention to the actions of community leaders who act as models of environmentally friendly behaviour, or provide individuals, households or neighbourhoods with feedback as to their progress over time towards sustainable environmental goals. Other findings offer insights into the likely efficacy

Sub-groups of the sample displaying high levels of climate change concern.

of interventions that use financial incentives and deterrents. For example, the findings suggest that Australians are more likely to accept price rises in one-off purchases of environmentally friendly products than similar rises in the prices of everyday consumables.

To be effective, interventions require the use of well-targeted communication strategies. The survey revealed the sources of information about climate change that are most often used and most often trusted by Australians. At first glance, to achieve maximum reach and considerable impact, the survey findings suggest climate change communication should note both frequently used and well-trusted sources such as the Bureau of Meteorology, scientists and scientific publications, environmental organisations, and government providers of climate change information like the CSIRO.

The story of climate action in Australia is much more complex than the usual broad-brush strokes of trust or not in climate science would suggest, recurrent as they are in ours and similar surveys. We know from our survey results that most Australians agree that climate change is an urgent issue. However, there is much more to their action, or not, on climate and associated environmental issues. Climate action is a part of the historical, political, cultural, social, economic and ecological milieu that defines Australia, its communities and its people.

Well-targeted communication strategies are cognisant of audience and give due consideration the complexity of motivating climate action in the context of people's everyday lives, location, experiences and priorities. The range of factors in this survey, including and beyond climate science, implies that further targeted interventions to improve communication and engagement of Australians in climate action by expanding the ways in which these trusted sources draw on social sciences to support engagement and uptake of knowledge and information.

A Climate Action Survey will be conducted each year from the present until 2025. Over the next five years, Climate Action Beacon researchers will add (and replace) variables, questions, and topics to those investigated in 2021, and thereby extend knowledge of currently under-researched topics.

Worldwide, few surveys are as comprehensive as the current one, and even fewer have been repeated in multiple years. The planned longitudinal nature of Griffith's Climate Action Survey has the potential for discovering much that is both new and important. Of particular interest is the capacity of these surveys to shed light on the temporal relations between critical variables, so there is increased understanding of 'what leads to what'. Full or partial replication of the Climate Action Survey in other nations and cultural settings is strongly encouraged, as is collaboration from national and international colleagues. Together, these endeavours will deepen knowledge of the factors that strengthen, and the factors that weaken, citizens' understandings and responses to climate change.