

21 June 2020

Minister for Energy and Emissions Reduction
Hon. Angus Taylor MP
Parliament House
Canberra ACT 2600

By online lodgement to: <https://consult.industry.gov.au/>

Technology Investment Roadmap

Dear Minister

Energy Consumers Australia appreciates the opportunity to provide this submission in response to the *Technology Investment Roadmap Discussion Paper* (the Paper) of May 2020.

Energy Consumers Australia supports the Australian Government's goal for the Technology Investment Roadmap which is to "bring a strategic and system-wide view to future investments in low emissions technologies". We welcome the process outlined by the Australian Government for the *Technology Investment Roadmap* to inform the first (of the annual) *Low Emissions Technology Statements* and for them both to be the cornerstone of Australia's long term emissions reduction strategy, which is to be delivered ahead of COP26.

In this submission we will first outline what we understand to be the interests of consumers in the context of a transitioning energy system. We will then respond to the specifics of the Paper including the issues on which the Government specifically sought views.

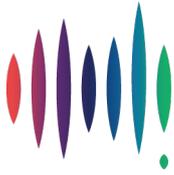
The long-term interests of consumers

Energy Consumers Australia is the national voice for residential and small business energy consumers. Established by the Council of Australian Governments (COAG) Energy Council (the Energy Council) in 2015, our objective is to promote the long-term interests of energy consumers with respect to price, quality, reliability, safety and security of supply through providing and enabling of strong evidence-based advocacy.

The attachment provides a short summary of surveys on Australian consumers attitudes to climate change. The research shows there is an overwhelming acceptance that the climate is changing (over 75%) and that it is both caused by humans and that we should be taking steps now to address it (both 60%).

Energy Consumers Australia is an energy advocacy body, and in that context has long supported the integration of energy and climate policies as the means to best achieve a transition to a least cost lower emissions energy system.

To understand consumer expectations of their energy future, Energy Consumers Australia commissioned Forethought Research in 2019. We asked consumers about their lives, their experience of the energy market now and what a better energy market in the future would look like. Unless consumers are offered "better": they will assume that the future is a repeat of the past, which as we have seen has seen rapidly escalating bills, a "confusopoly" of offers, "loyalty taxes" and little relief other than investing in rooftop solar systems.



The Consumer Expectations Research provides a wealth of information about consumers' experience of energy. It found that household consumers were focused on their everyday lives and often had so much happening, that energy was not top of mind, except at points of transitions in their life, including moving to a new house, starting a family, retirement. At these transition points, the experiences were often negative, and consumers asked themselves “what’s the point” of doing more to understand how to engage with the retail energy market.

Similarly, small businesses felt stuck on how to change their experience for the better but were acutely focused on the opportunity cost of energy in reducing their profitability or reducing the number of their employees.

In addressing the fundamental question of what better looks like, the Consumer Expectations Research revealed that households have five objectives from the future energy system, shown in Figure 1.

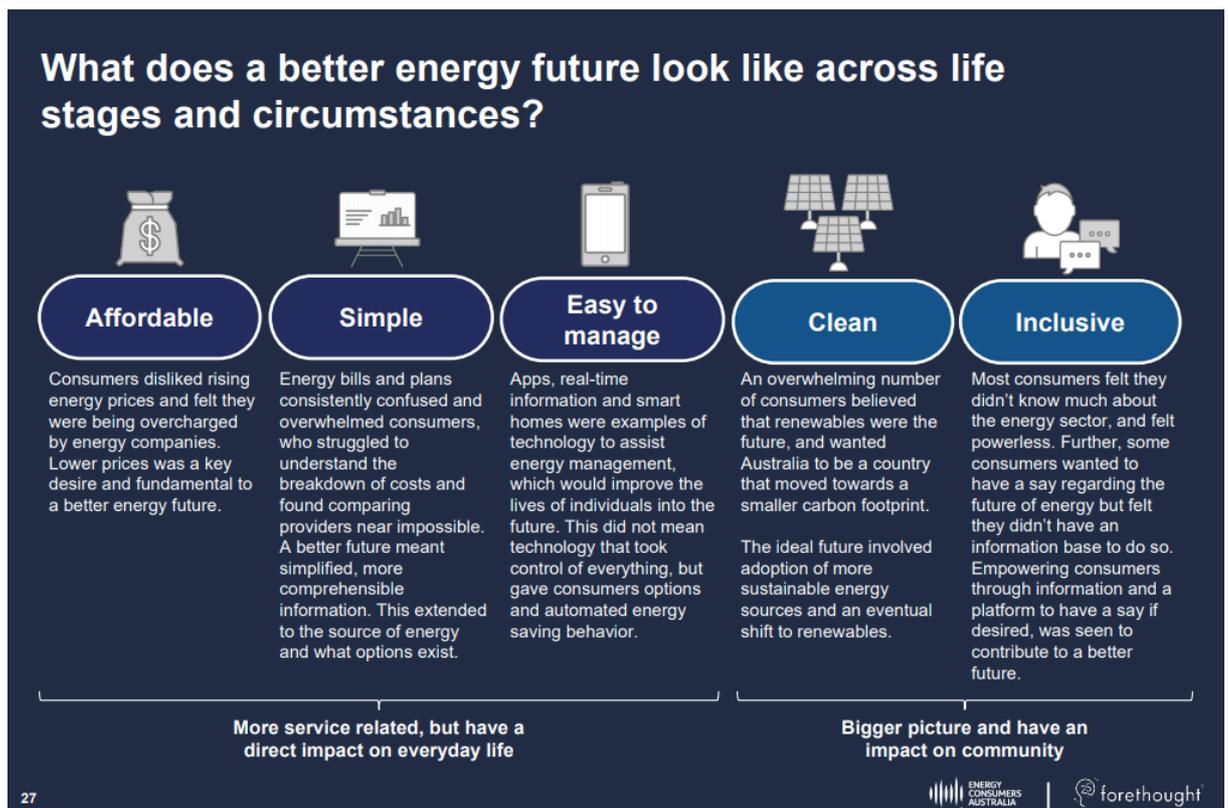


Figure 1: Consumer vision for the future retail energy market

In the context of the Technology Investment Roadmap, it is not sufficient that a technology pathway can be identified that meets economic goals. The pathway also needs to meet the needs of consumers and to provide consumers with ways in which they can control their energy use and manage their bills.

Further, the pathway needs to take account of the investment decisions of households that have implications for their energy use. The premises in which energy use occurs – over 10 million homes and small businesses – the type of appliances they buy (whether gas or electrical), and a future in



which on-site generation and electric vehicles could become ubiquitous all need to influence the design of the Technology Investment Roadmap.

Whichever is the right pathway, the sooner households and small businesses can be given the ability to invest in accordance with the pathway, the stronger will be the commitment from the community to engaging in a least cost lower emissions future.

We acknowledge that the Government's approach in the Technology Investment Roadmap is to look at the overall economy benefits of technologies, including their export potential. However, realising the export potential is dependent on the pathways offered to household and small business consumers in their home country.

Response to the Paper

The Paper provides guidance on matters on which the Government is seeking stakeholder views.

The Government welcomes stakeholders' views on the Roadmap, including with respect to:

- a) The challenges, global trends and competitive advantages that should be considered in setting Australia's technology priorities,*
- b) The shortlist of technologies that Australia could prioritise for achieving scale in deployment through its technology investments (see Figure 7).*
- c) Goals for leveraging private investment.*
- d) What broader issues, including infrastructure, skills, regulation or, planning, need to be worked through to enable priority technologies to be adopted at scale in Australia.*
- e) Where Australia is well-placed to take advantage of future demand for low emissions technologies, and support global emissions reductions by helping to deepen trade, markets and global supply chains.*

In particular, the Government would welcome suggestions for economic stretch goals that could help establish pathways for the cost-effective deployment of priority technologies.

We provide brief responses to the first four of these, focusing only on energy.

The challenges, global trends and competitive advantages that should be considered in setting Australia's technology priorities

As discussed, the challenge in managing the energy transition is to recognise the decision-making opportunities and priorities of end users of energy – households and small businesses in the main but also large commercial and industrial users. Australia has a clear comparative advantage in the scale of its renewable energy resources, and we believe that the focus of the Technology Investment Roadmap should include realising the benefits of this scale.

The shortlist of technologies that Australia could prioritise for achieving scale in deployment through its technology investments

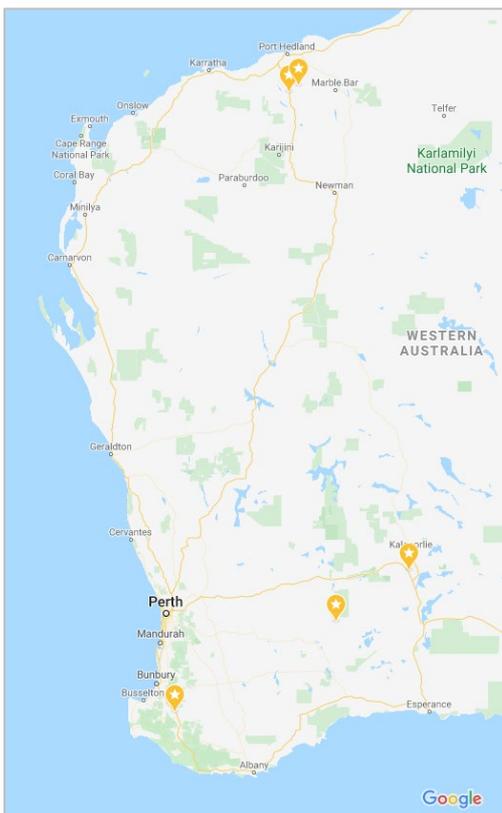
The shortlist of technologies includes a footnote that for some technologies the survey to identify their position on the readiness dimensions, their efficiency in abatement and the potential amount of abatement has not been completed. The footnote says these will be included in the first Low Emissions Technology Statement. We suggest that to ensure that there is sufficient consultation on these technologies, an updated or second discussion paper should be released once all the surveys are complete.



We also note that various alternatives of energy storage (pumped hydro, batteries) are not immediately amenable to the survey approach. Their function is to make other options (e.g. solar) more useable. This suggests the analysis perhaps needs to consider clusters of technologies rather than stand-alone technologies. We also consider that other forms of physical storage (e.g. compressed air, raised weights) should be included in the analysis.

Finally, we believe the focus on domestic emissions reduction rather than global emissions reduction means that some opportunities for economic value added may be missed.

By way of example, we note that article in the *Saturday Paper* on 13 June 2020 'The unfulfilled promise of lithium mining' notes that Australia exports minimally processed spodumene to China. Spodumene, which contains only about 2 per cent lithium, must be crushed and cooked to make a concentrate, which is then milled into fine powder before being mixed with acid and roasted again to produce the material needed for batteries.



The article reports that an industry and research consortium in Western Australia has proposed that the Australian government invest in developing a “lithium valley” in the state to rival California’s Silicon Valley, with processing, battery manufacture and recycling here in Australia. (This, of course, misdescribes Silicon Valley which is an IT cluster not a minerals processing region). The article quotes Joe Lowry, president of Global Lithium, saying ‘It’s cheap to mine in Western Australia. It’s not cheap to make chemicals in Western Australia. The infrastructure is not great. You’re a long way from anywhere. Your energy costs aren’t super cheap, and labour costs are high.’

These four suggested deficiencies are all within the purview of the Technology Investment Roadmap to address. The five known Lithium mines are not particularly remote relative to WA’s mine infrastructure (shown with stars in the map to the left), it is cheaper to transport less material long distances, and energy should be cheap through renewables. If the issue is process heat, then concentrating solar technologies may be more appropriate. For lithium in batteries to be part of a net-zero future it needs to be purified using net-zero carbon energy. Where better to achieve that than in WA – especially the two mines near Port Hedland.

Figure 2: Lithium Mines in Western Australia

We note that lithium processing and other energy intensive primary resource processing activities (including recycling) need to be included. The objective needs to be harnessing the full economic advantage of our extensive renewable resources.

Goals for leveraging private investment.

We are not in a position to comment on leveraging private investment in projects. We do however note the extensive private investment at household scale that has been occurring in rooftop photovoltaic



generation. The investors in these assets – in homes and businesses have a reasonable expectation that in the management of the energy system, they will be treated fairly.

What broader issues, including infrastructure, skills, regulation or, planning, need to be worked through to enable priority technologies to be adopted at scale in Australia.

Before any issues of infrastructure, skills or regulation are addressed for the energy sector, attention has to be placed on planning. No matter how detailed the Technology Investment Roadmap is, the future will remain uncertain. Uncertainty arises from

- how quickly technologies will achieve true commercial potential or further significant cost reduction,
- the actions of other actors in other jurisdictions, and
- the boundless opportunities of new research discoveries.

The uncertainty of the future can be mitigated by the use of scenarios. Scenarios are not attempts to predict the future, they are analyses based on a few (typically three or four) cuts through the future system which focuses on a few highly relevant and dominating issues of concern to the strategic planner.¹

Energy Consumers Australia conducted our own scenario planning for the energy system in late 2019.² Those scenarios for the future of heat, light and power took a consumer view of the future and mapped four very different possible futures.

Concluding remarks

We support the Australian Government's approach to achieving a long-term emissions reduction strategy ahead of COP26 through the Technology Investment Roadmap that can be used to inform domestic policy and investment decisions.

We see the Technology Investment Roadmap as underpinning a comprehensive strategy, which will deploy most of the technologies identified in the Paper.

But overall, the transition to a least cost, lower emissions energy system needs to be designed around how consumers can and will participate in energy markets.

If you have any questions in relation to this submission please send them to David Havyatt, Senior Economist, at david.havyatt@energyconsumersaustralia.com.au or on 0414 467 271.

Yours sincerely

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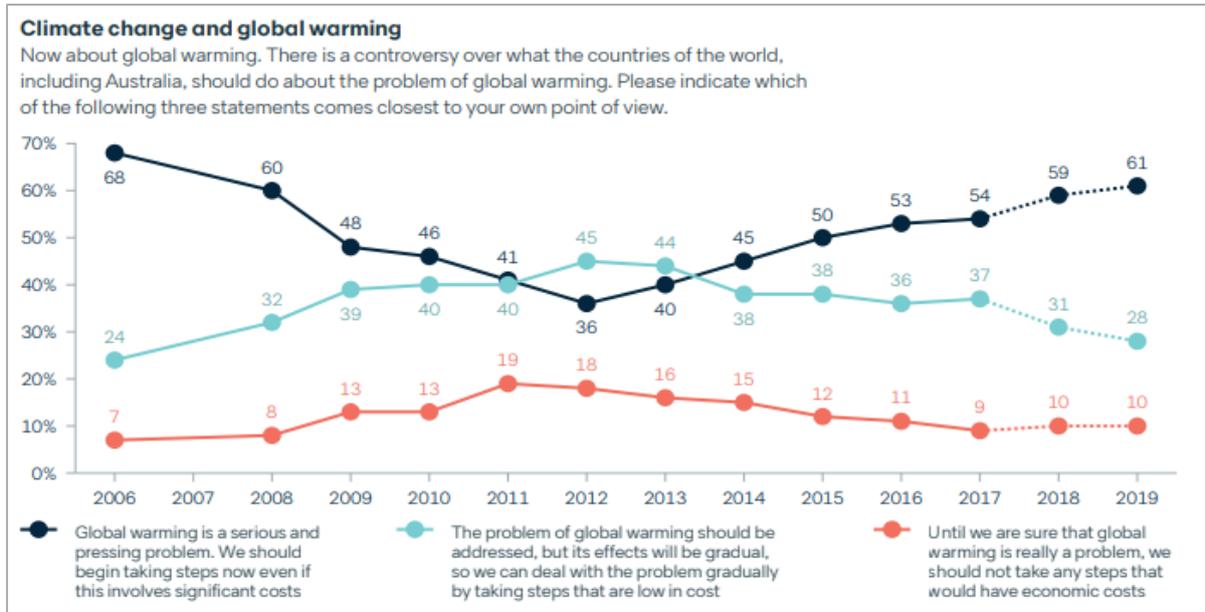
¹ Ramírez, Rafael. *Strategic Reframing* (p. xi). OUP Oxford. Kindle Edition.

² <https://energyconsumersaustralia.com.au/wp-content/uploads/Futures-of-Heat-Light-and-Power-Scenarios-for-the-Australian-Energy-Sector-in-2050.pdf>

Attachment - A short survey on Australian attitudes to climate change

Lowy Institute Poll 2019

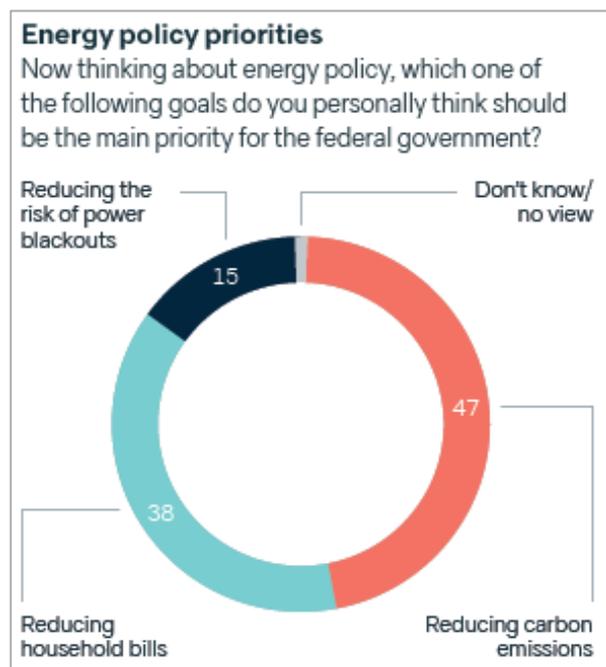
The Lowy Institute Poll has been surveying attitudes to climate change since 2006. In 2019 61% say 'Global warming is a serious and pressing problem. We should begin taking steps now even if this involves significant costs.' This is the second highest level recorded, and the trend is showing rising concern.



The Lowy Institute Poll in 2017 and 2018 asked about consumer attitudes to renewable energy and energy supply. In 2018 84% (2017 81%) of respondents said that 'The government should focus on renewables, even if this means we may need to invest more in infrastructure to make the system more reliable' over 17% for 'The government should focus on traditional energy sources such as coal and gas, even if this means the environment may suffer to some extent.'

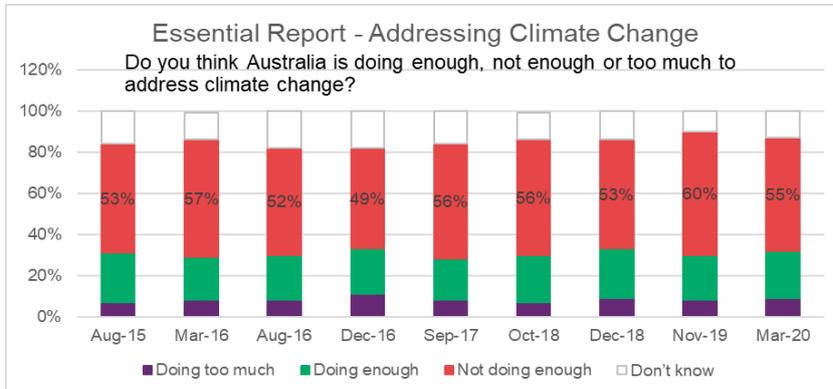
The 2019 Poll replaced this with a question about energy policy priorities. It shows that consumer priorities are in the order of reducing carbon emissions, reducing household bills and reducing the risk of power blackouts, as shown in the diagram to the left.

It should be noted that there is a current concern that prioritising renewables might increase the risk of power blackouts and the results may be different if that was the way the question was asked.



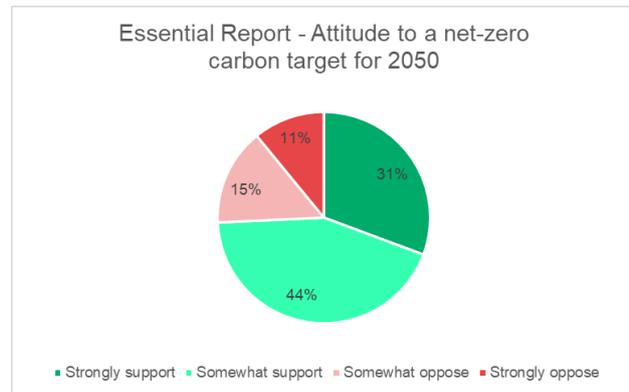
Essential Report

In March 2020 following the extreme bushfire season the Essential report polled the question *'Considering everything which has happened so far this year, are you now more or less concerned about the impact of climate change than you were a year ago?'* 31% were more concerned, 53% neither more nor less concerned and 16% less concerned.

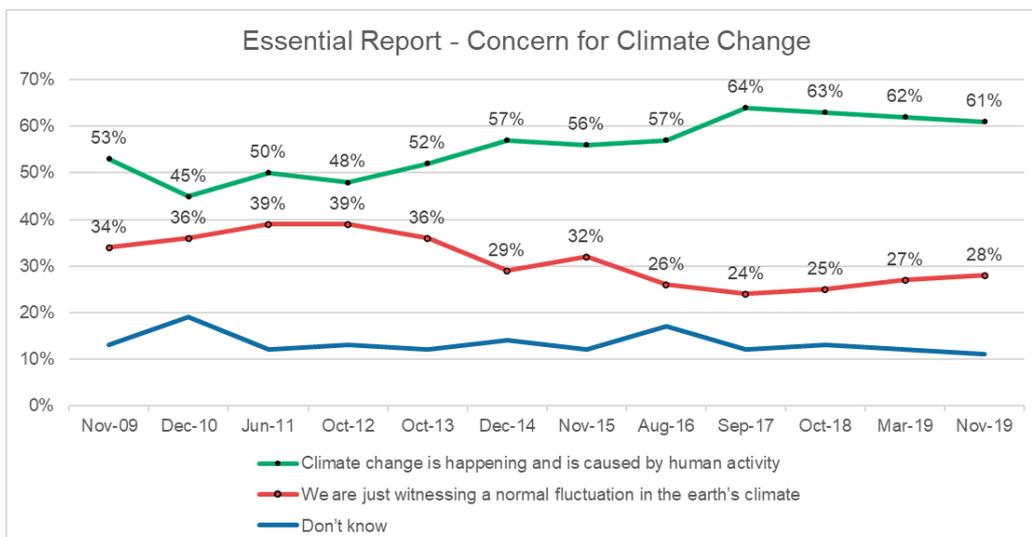


In the same poll they asked a question they have asked over time. *'As far as you know, do you think Australia is doing enough, not enough or too much to address climate change?'* In almost every survey more than 50% of respondents said Australia isn't doing enough to address climate change.

In February 2020 the Essential report posed the question *'To what extent would you support or oppose setting a zero-carbon pollution target for 2050 if it were adopted by the Federal Government?'* 75% of respondents supported the Australian Government adopting a target of net-zero carbon by 2050.

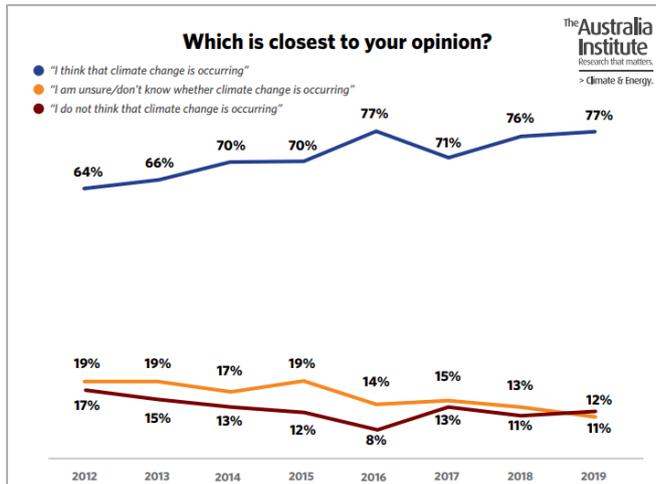


November 2019 was the last time Essential asked the question of whether people believed that there was fairly conclusive evidence that climate change is happening and caused by human activity. For the last four surveys (starting September 2017) over 60% of respondents believe climate change is happening and is caused by human activity. Significantly the increase in affirmative responses has mostly been at the expense of the negative responses.



Australia Institute Climate of the Nation 2019

For three of the last four years the Australia Institute's *Climate of the Nation* has found that more than three quarters of Australians think that climate change is occurring. The proportion that are unsure or who do not think it is occurring has been declining over the eight annual surveys.

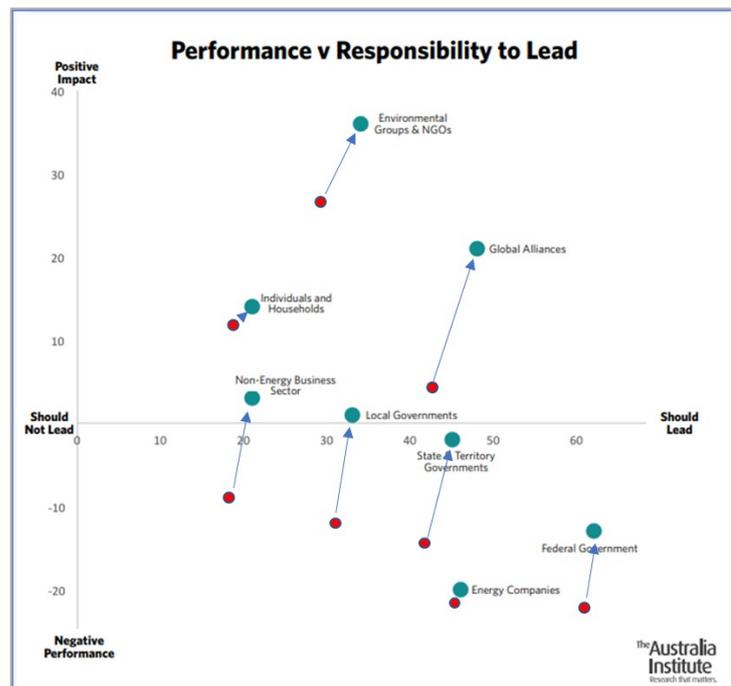


Climate of the Nation asked respondents both what they believe to be the causes of climate change and what their perceptions of what other Australians believe are the causes of climate change. Overall, Australians underestimate the number of people who believe humans are the main cause of climate change and overestimate the number of climate sceptics.

While 61% of Australians believe that humans are the main cause of climate change, Australians on average think that view is shared by less than half (49%) of

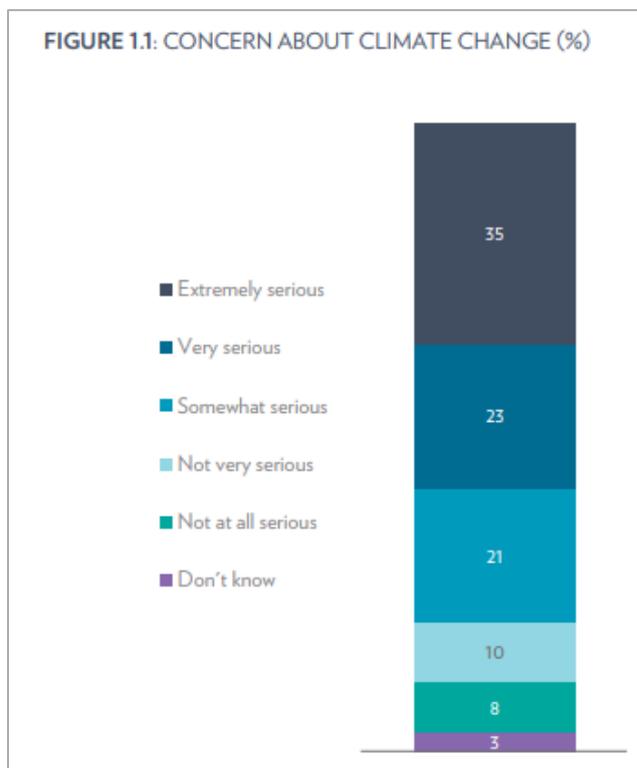
their fellow Australians. Interestingly, the number of sceptics who think climate change is not happening at all is only 3% (respondents estimated 13%), suggesting many are willing to concede that climate change is occurring if they are given the option to say it isn't mainly caused by humans.

The Australia Institute also asks respondents about their view on the performance and responsibility to lead of various actors. Between the 2018 and 2019 reports there has been little change in the perception of the responsibility to lead, but a significant improvement in the assessment of all levels of Government, non-energy businesses and global alliances. In the diagram below the large green dots are the positions in the 2019 report, while the red dots were the positions in the 2018 report.



Digital News Report: Australia 2020

The Digital News Report is part of a long running international survey coordinated by the Reuters Institute for the Study of Journalism and it delivers comparative data on media usage in 40 countries and across 6 continents. The 2020 report asked questions about climate change.



Four out of every five participants say they consider climate change to be a serious problem (79% — 58% consider it to be a very or extremely serious problem, 21% consider it somewhat serious)

8% consider it not at all serious. Compared to the global average of 3%, Australia has the third largest proportion of news consumers that think climate change is not at all serious. The highest is the United States of America with 12%.

News consumers in regional and rural Australia are less likely to be concerned about climate change. Despite the disproportionate effect of drought, bushfires and floods on regional communities, one-quarter (24%) of regional news consumers say climate change is not at all serious compared to 14% of city dwellers.

It is interesting to note that the RenewEconomy story labelled the 8% as 'deniers' in an apparent failure to recognise the report's goal was to reflect on media coverage such as this kind of labelling.

The Australian Beliefs and Attitudes Towards Science Survey 2018

The Department that is now the Department of Industry, Science, Energy and Resources commissioned the Australian National University to survey Australians' beliefs and attitudes towards science. The surveys were conducted in 2017 and 2018.

In the 2018 survey, 79.8% of Australians believe there is solid evidence that the Earth has been 'getting warmer over the last few decades.' 69.8% of these respondents say the warming of the Earth is 'mostly because of human activity.'

Sources:

Lowy Institute Poll

Lowy Institute Poll 2018 Alex Bennett June

https://www.lowyinstitute.org/sites/default/files/LOWY_2018-PollReport_LR_0.pdf

Lowy Institute Poll 2019 Natasha Kassam

<https://www.lowyinstitute.org/sites/default/files/lowyinsitute-poll-2019.pdf>

Essential Report

The Essential Report – various fortnightly results. The data gathered for this report is gathered from a fortnightly online omnibus run by Essential with sample provided by Qualtrics.

<https://essentialvision.com.au/about-this-poll>

Australia Institute

The Climate Institute's Climate of the Nation reports tracked Australian attitudes on climate change for more than a decade. The Australia Institute has continued this work by engaging leading firm YouGov Galaxy (which produces Newspoll) to conduct the quantitative survey.

Climate of the Nation 2018: Tracking Australia's attitudes towards climate change and energy Research report by Ebony Bennett, Australia Institute. The quantitative research for Climate of the Nation was conducted on the YouGov Galaxy Online Omnibus between Thursday 7 June and Thursday 14 June 2018.

<https://www.tai.org.au/sites/default/files/180911%20-%20Climate%20of%20the%20Nation%202018%20%5BPRINT%5D.pdf>

Climate of the Nation 2019: Tracking Australia's attitudes towards climate change and energy Research report by Richie Merzian, Audrey Quicke, Ebony Bennett, Rod Campbell and Tom Swann, Australia Institute. The quantitative research for Climate of the Nation was conducted on the YouGov Galaxy Online Omnibus between Friday 25 July and Thursday 1 August 2019.

<https://www.tai.org.au/sites/default/files/Climate%20of%20the%20Nation%202019%20%5BWEB%5D.pdf>

Digital News Report: Australia 2020

Digital News Report: Australia 2020 Sora Park, Caroline Fisher, Jee Young Lee, Kieran McGuinness, Yoonmo Sang, Mathieu O'Neil, Michael Jensen, Kerry McCallum and Glen Fuller University of Canberra with Reuters Institute for the Study of Journalism, University of Oxford.

<https://apo.org.au/sites/default/files/resource-files/2020-06/apo-nid305057.pdf>

The Australian Beliefs and Attitudes Towards Science Survey 2018

<https://www.industry.gov.au/data-and-publications/the-australian-beliefs-and-attitudes-towards-science-survey-2018>