CLIMATE CHANGE AUTHORITY

2023 ANNUAL PROGRESS REPORT

October 2023

The authority recognises the First Nations people of this land and their ongoing connection to culture and country. We acknowledge First Nations people as the Traditional Owners, Custodians and Lore Keepers of the world's oldest living cultures, and pay our respects to their Elders.

This report was printed on Ngunnawal land.

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CLIMATE CHANGE AUTHORITY

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27 October 2023

The Hon Chris Bowen MP
Minister for Climate Change and
Energy Parliament House
CANBERRA ACT 2600

Dear Minister Bowen

In response to your request of 21 July 2023, and in accordance with section 14 of the *Climate Change Act 2022*, the Climate Change Authority submits to you its advice to inform the second annual Climate Change Statement to Parliament, entitled *Second annual progress report*.

Section 14(6) of the *Climate Change Act 2022* requires the authority to publish a copy of its advice on its website no later than the day you table your annual Climate Change Statement in the Parliament. The authority is also required by the Act to cause its advice to be tabled no later than the day that you table your Statement, and within 15 sitting days after giving you the advice.

Yours sincerely

Mr Grant King
Chair

Mr Brad Archer
Chief Executive Officer

Australian Government
Climate Change Authority

Acknowledgements

The authority would like to thank a number of government agencies and organisations for their assistance, including: the Department of Climate Change, Energy, the Environment and Water; the Clean Energy Regulator; the Department of Industry, Science and Resources; the Department of Infrastructure, Transport, Regional Development, Communications and the Arts; the Department of the Prime Minister and Cabinet; the Treasury; the Department of Foreign Affairs and Trade; the Bureau of Meteorology; and the Australian Bureau of Statistics.

The authority is also grateful to the individuals and organisations who contribute time and expertise to the Authority's broader work, including those who provide submissions and participate in consultation. These contributions help inform the authority's analysis and advice and will continue to shape our future Annual Progress Reports.

The views expressed in this Second Annual Progress Report are the authority's own and should not be taken as the views or positions of the entities listed above.

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Table of acronyms

Acronym	Meaning
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ABS	Australian Bureau of Statistics
ACCU	Australian Carbon Credit Unit
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
APR	Annual Progress Report
APRA	Australian Prudential Regulation Authority
ARENA	Australian Renewable Energy Agency
ASX	Australian Securities Exchange Ltd
CBAM	Carbon Border Adjustment Mechanism
CCA	Climate Change Authority
CCS	Carbon Capture and Storage
CCUS	Carbon Capture Utilisation and Storage
CEC	Clean Energy Council
CEFC	Clean Energy Finance Corporation
CFI	Carbon Farming Initiative
CO_2-e	Carbon Dioxide equivalent
COP	Conference of the Parties
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAC	Direct Air Capture
DAT Act	*Data Availability and Transparency Act 2022*
DAFF	Department of Agriculture, Fisheries and Forestry
DCCEEW	Department of Climate Change, Energy, the Environment and Water
EPBC	*Environment Protection and Biodiversity Conservation Act 1999*
FY	Financial year
FPIC	Free, Prior, and Informed Consent
GEMS	Greenhouse and Energy Minimum Standards
GW	Gigawatt
GWP	Global Warming Potential
HFC	Hydrofluorocarbons
HTS	High Temperature Superconductors
ICCPR	International Covenant on Civil and Political Rights
ICE	Internal Combustion Engine
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial Processes and Product Use
IRA	*Inflation Reduction Act 2022* (United States)
ISP	Integrated System Plan
ITMO	Internationally Transferred Mitigation Outcome
LNG	Liquified Natural Gas
MERiL	Methane Emissions Reduction in Livestock
MERNAP	Maritime Emissions Reduction National Action Plan
MLA	Meat & Livestock Australia
MRV	Measurement, Reporting and Verification
Mt	Megatonne
MW	Megawatt
NatHERS	Nationwide House Energy Rating Scheme
NDC	Nationally Determined Contribution
NEM	National Electricity Market
NEPS	National Energy Performance Strategy
NGER	National Greenhouse and Energy Reporting
NGFS	Network for Greening the Financial System
NRF	National Reconstruction Fund
OECD	Organisation for Economic Cooperation and Development

PV	Photovoltaic
R&D	Research and Development
RD&D	Research, Development and Demonstration
REZ	Renewable Energy Zones
RIT-T	Regulatory Investment Test for Transmission
SRES	Small-scale Renewable Energy Scheme
STEM	Science, Technology, Engineering, and Mathematics
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNHRC	United Nations Human Rights Committee
USD	US Dollar
WEM	Wholesale Electricity Market

Key messages

Human activity is changing the climate in ways that are dangerous to our way of life. Current climate change policies around the world are taking the Earth to a 2.8°C temperature rise by the end of the century. We are already seeing dangerous impacts from 1.1°C of warming. Urgent action is needed to put the world on a much safer climate trajectory consistent with the Paris Agreement goals.

With broad government, business and community support, and the Parliament legislating emissions reduction targets, Australians have agreed to take strong action on climate change. Emissions must decline on average by 17 Mt CO_2-e a year from now until the end of the decade to achieve Australia's 2030 target.

Momentum in the form of emissions reduction targets and policies are yet to translate into the outcomes we need. Since 2020, emissions have been declining at only slightly more than half the required rate and, in the 12 months to June 2023, rose slightly.

Meeting or surpassing Australia's 2030 target is crucial – otherwise achieving the more ambitious but essential targets needed down the track will be that much harder. The authority's assessment is there are real risks of falling short, but working together we can succeed. The challenge is: 'are we willing to do what it takes?'

Now is the time to get serious about Australia's just transition to a prosperous, net zero economy. There are some hard decisions we, as a society and as individuals, need to make, including getting the balance right between accelerating action and involving communities and individuals in decisions that affect them.

The government's plans for reaching the 2030 target relies heavily on meeting its 82% renewable energy target. Renewables have been growing strongly – more than doubling in the share of electricity generation over the past seven years, from 14% in 2015 to 32% in 2022. To highlight the size of the challenge ahead, we have now until 2030 to increase the share of renewables from 32% to 82%. In other sectors of the economy, emissions have mostly been flat or, in some cases such as transport, have been rising.

The risk of falling short of Australia's 2030 target should be addressed by greater support, from governments at all levels and communities, for the development of renewables and related infrastructure and the pursuit of emissions reductions in other sectors.

With 2030 only seven years away, it is important that the many policies being put in place by the federal, state and territory governments are being implemented effectively. Timely and transparent reporting on policy implementation will lift community confidence that targets can be met.

Summary

Human activity is causing the world's climate to change in ways that are dangerous to humans and the natural ecosystems we rely on. Strong and urgent action is needed for a safer climate trajectory.

This is what 1.1°C degrees of warming has looked like this year: news about wildfires in countries such as Hawaii, Spain, Greece and Canada; floods in China, India, Pakistan and Nigeria; and heatwaves in the United Kingdom, Europe and India. July 2023 was the hottest month in over a century of global temperature records, and thousands of climate records have been exceeded worldwide. The risks of cascading effects and tipping points are mounting – winter sea ice in Antarctica was at a record low in 2023 and ocean currents are slowing. Only strong and urgent action to reduce greenhouse gas can get us on a much safer climate trajectory.

Earlier this year, the Intergovernmental Panel on Climate Change reported that current policies are taking the world to a 2.8°C temperature rise by the end of the century. The first Global Stocktake of progress towards meeting Paris Agreement goals is underway. It will provide a vital update for countries when they meet at the end of the year. The early signs are concerning. The United Nations Secretary-General, António Guterres, foreshadowed in a recent speech:

> *Countries are far off track in meeting climate promises and commitments. I see a lack of ambition. A lack of trust. A lack of support. A lack of cooperation. And an abundance of problems around clarity and credibility. …*
>
> *We are hurtling towards disaster, eyes wide open — with far too many willing to bet it all on wishful thinking, unproven technologies and silver bullet solutions.*
>
> *It's time to wake up and step up. It's time to rebuild trust based on climate justice. It's time to accelerate the just transition to a green economy. Limiting the rise in global temperature to 1.5°C is still possible. We must consider this as a moment of hope. But it will require carbon emissions to be cut by 45 per cent [from 2019 levels] by 2030 (UN, 2023).*

This stark warning and call to action sets the context for this Annual Progress Report. As a small, open and emissions-intensive economy, and one of the most vulnerable to the impacts of climate change among developed nations, it is critical that Australians work together to take strong and urgent action to reduce emissions and increase our resilience to climate impacts.

With broad government, business and community support for strong action and the Parliament legislating Australia's targets, Australians have agreed to act.

Australia has legislated targets of a 43% reduction in emissions in 2030 compared with 2005 and net zero emissions by 2050. Now we must – together – commit to and take the actions necessary to achieve these targets.

Governments hold the policy levers required, including regulatory, fiscal, market-based and informational, to guide businesses and individuals to choices that support Australia's climate change goals. Meeting federal, state and territory targets will require a national strategy, implemented locally. The necessary changes go beyond the reach of any government acting alone.

Companies need to plan and invest for markets, in which governments, investors and consumers are demanding low and zero emissions goods and services if they are to survive and prosper in a decarbonising world. They will need to inform investors of the decisions they make about new low- and zero-emitting production processes, when these new technologies will be implemented, and the quantity and type of carbon offsets they plan to use, if any.

Investors, particularly institutional investors, are demanding that climate risks be disclosed, managed and priced in key financial markets globally. To help ensure that flows of private finance align with Australia's net zero ambitions, the government is mandating corporate climate risk disclosures, leading the development of sectoral plans, supporting the creation of green investment guides (sustainable finance taxonomy), and issuing green bonds to support climate-related and environmental projects.

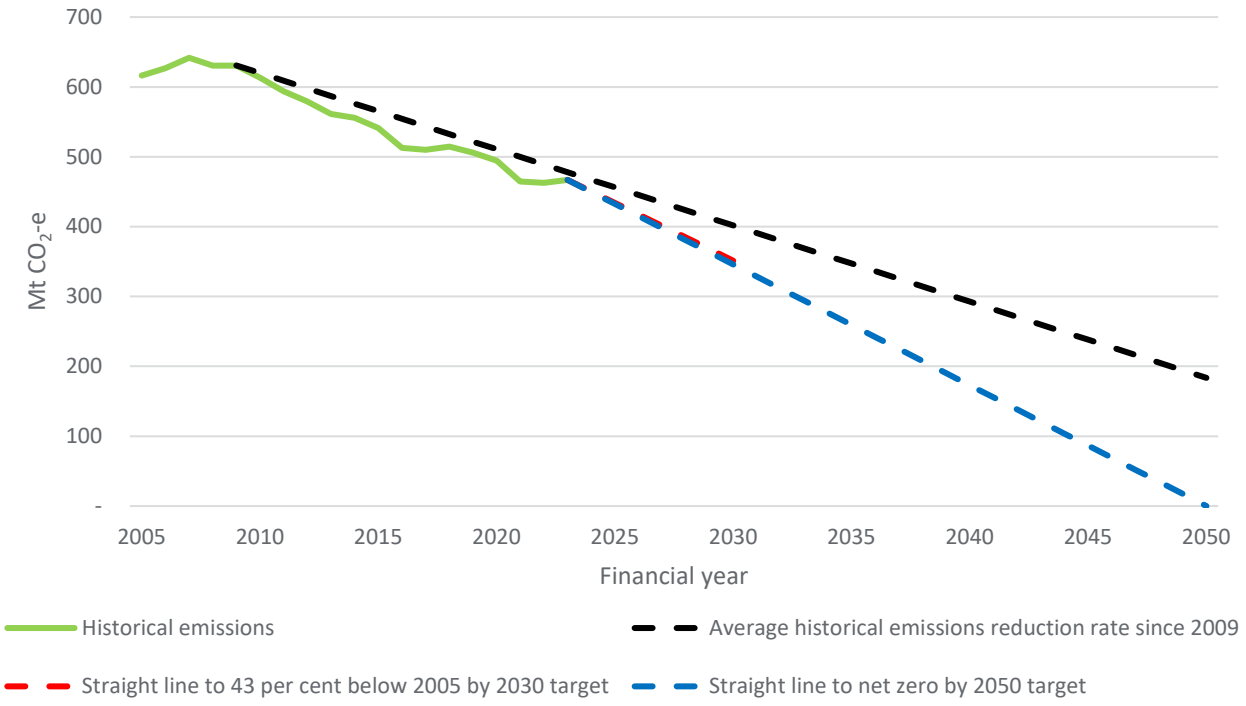
Communities and the people who live in them play an important role in granting companies and governments the 'social licence' to make the changes required for decarbonisation to proceed, such as supporting new renewable electricity projects and installation of transmission lines. Every individual makes important choices on a daily basis about how they will participate and live in a decarbonising world, such as how to travel, how their superannuation is invested, and what products they buy.

Australia is not yet on track to meet its 2030 targets. Ambition and momentum in the form of targets and policies must translate quickly into action and emissions reductions.

The Australian Government is pursuing a broad and deep climate change policy agenda, but that has not yet translated into the emissions reductions we need.

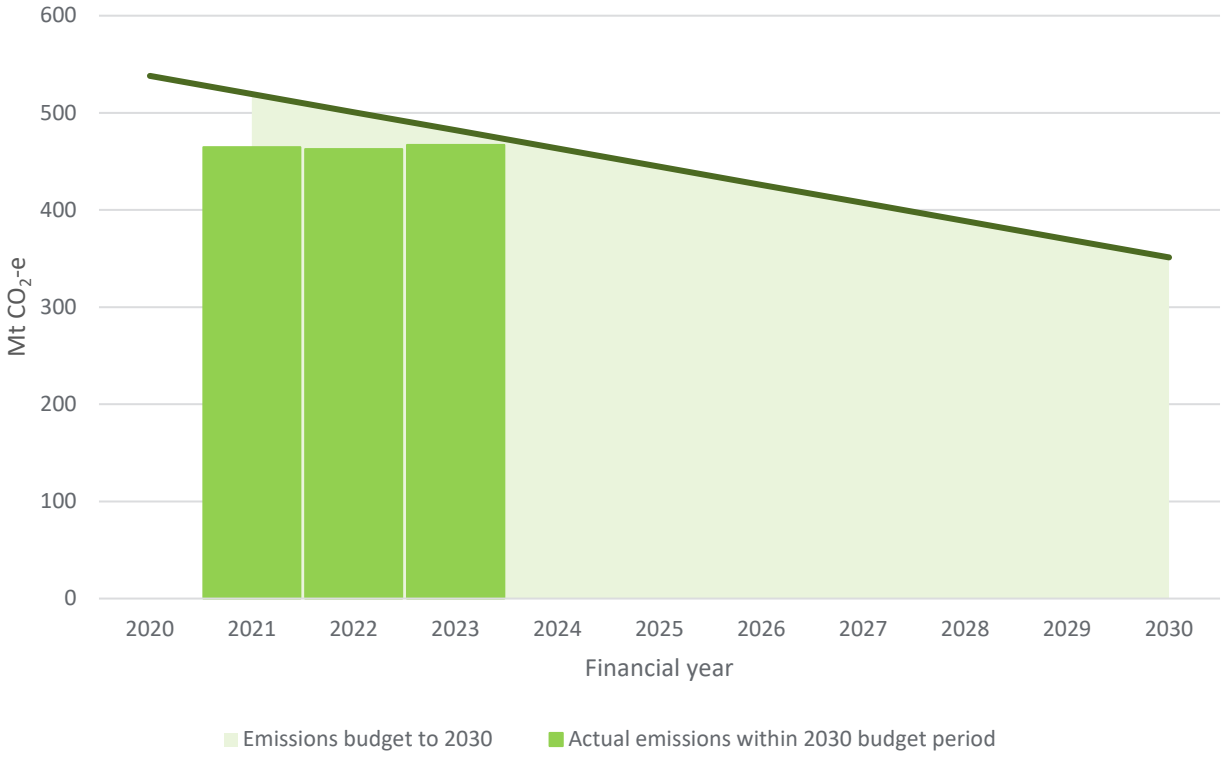
Australia emitted 467 million tonnes (Mt) CO_2-e in the year ending June 2023, which is 116 Mt CO_2-e more than the level we need to reach by 2030 if we are to meet the Paris Agreement target of a 43% reduction below the level of emissions in 2005. To achieve the 2030 target, Australia will need to decarbonise at an average annual rate of 17 Mt CO_2-e. In the year to June 2023, the government's preliminary estimates show emissions actually rose slightly.

Figure 1: Progress to Australia's 2030 emissions reduction target



As well as the 2030-point target of 43% below 2005 levels, Australia has another 2030 target under the Paris Agreement: an emissions budget for the decade 2021–2030 of 4,353 Mt CO_2-e. The emissions budget is defined to start from Australia's 2020 target emissions level, which was higher than actual emissions in that year. For the first few years of the decade Australia has been tracking under the straight-line trajectory used to calculate its emissions budget and is likely to be under it again this year. However, despite getting a head start, Australia will soon overshoot that trajectory unless emissions begin to decline rapidly.

Figure 2: Progress against Australia's 2021–2030 emissions budget



Notes:

- Includes preliminary estimates of emissions from April to June 2023.
- Source: (DCCEEW, 2023m)

It makes good sense to plan to decarbonise as quickly as possible because emissions reductions accumulate. Theoretically, Australia could leave action to meet the point target of 43% to 'the last minute' and make a steep, 116 Mt CO_2-e reduction in 2030. (For comparison, all the emissions from transport in Australia amount to just under 100 Mt CO_2-e.) Australia would achieve the point target but fail to meet its emissions budget. As set out above, Australia could instead reduce emissions by 17 Mt CO_2-e a year for the next seven years to 2030. This would result in 463 Mt CO_2-e less in the stock of greenhouse gases in the atmosphere by 2030, compared to leaving it to the last minute.

This annual progress report focuses on what it will take to meet Australia's 2030 targets. Achieving them will enable even greater ambition for 2035 and pave the way for Australia to achieve its net zero target by 2050, or earlier. Failure to meet the 2030 targets will run the risk of a more expensive, disorderly and difficult task in the future, and some opportunities will likely pass Australia by.

Achieving Australia's 2030-point target relies heavily on meeting the government's 82% renewable energy target. The risks of falling short should be addressed by further action to support renewables and stronger pursuit of emissions reductions elsewhere in the economy.

The government intends the 2030 target to be met mostly from its 82% renewable energy target (roughly 37 Mt CO_2-e in 2030), and the reformed Safeguard Mechanism (also roughly 37 Mt CO_2-e in 2030) which applies to large industrial facilities (but also acts as an incentive for carbon offset projects under the Australian Carbon Credit Unit scheme).

Reducing emissions from electricity generation, which accounts for almost one-third of Australia's total emissions, is critical in its own right and for facilitating emissions reductions in other sectors of the economy. This is because it opens up options for reducing emissions by switching away from emissions intensive coal, oil and gas and towards the use of clean electricity, such as in electric vehicles and electric hot water, cooking and heating, and in many industrial processes.

Electricity

Further action is needed to support the rapid deployment of renewables.

The combustion of coal and gas to generate electricity for public use accounts for 33%, or 153 Mt CO_2-e, of Australia's emissions.

Renewable energy provided 32% of Australia's electricity generation in 2022, (DCCEEW, 2023a). Achieving the government's 2030 target for renewables of an 82% share requires the rapid deployment of very significant amounts of wind and solar generation, together with the rollout of additional network infrastructure, adequate amounts of energy storage to provide reliability when there is insufficient wind and sun, an orderly exit of coal fired generation, and, where needed, solutions for ensuring electricity continues to be supplied safely and securely as the share of renewables rises.

The Australian and state and territory governments are pursuing a range of initiatives that are intended to ensure progress on these fronts. However, without further concerted action, Australia is likely to fall short of the 82% renewables target.

- The Australian Government does not currently have an active policy mechanism in place that ensures the necessary investment in renewables generation will be forthcoming. The states and territories own renewables targets collectively fall short of delivering 82% nationally.
- Deployment of large-scale renewable generation capacity – wind and solar farms – needs to at least double compared with the current rate. The authority's leading indicators point to an investment pipeline that is not as strong as it needs to be.
- Scheduled closures of coal fired power stations do not align with achieving 82% renewables.

Every percentage point we fall short of achieving 82% renewables equates to roughly 2 Mt CO_2-e that needs to be reduced elsewhere in the economy, if the overall target of a 43% reduction in emissions is to be achieved. [1] The risks of falling short should be addressed by further action to support the deployment of renewables, and the necessary investment in transmission and firming, and stronger pursuit of emissions reductions in other sectors of the economy.

Given shared responsibilities for the governance and regulation of electricity markets, there should be explicit agreement reached between the Australian Government and state and territory governments on the 82% target, with detailed plans and policies implemented to ensure all the conditions are in place for achieving it. The Australian Energy Market Operator's Integrated System Plan provides the starting point for such an agreement. There are various policy mechanisms already in place (for example, the federal Renewable Energy Target legislation, the Safeguard Mechanism, Rewiring the Nation and the Capacity Investment Scheme) that can be built upon to ensure there is sufficient investment in renewables and complementary infrastructure. In the absence of an agreed approach, the Australian Government will need to take more unilateral action.

The Australian Government is also developing a National Energy Performance Strategy. A strong strategy can accelerate energy efficiency savings in appliances, buildings and industrial equipment. Together with ongoing targeted support for small-scale renewables and storage, and continuing work on the integration of renewables into the electricity system, the strategy can contribute to the 2030 target and subsequent targets.

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[1] In the Australian Government's 2022 Australia's emissions projections report electricity emissions are 16.78 Mt CO_2-e lower in 2030 in a scenario which assumes the 82% renewable electricity target is met compared to a scenario which reaches 73.42% renewable electricity generation in 2030. This equates to a 2.0 Mt CO_2-e per additional percentage point of renewable electricity generation in 2030.

Industrial facilities

The Safeguard Mechanism reforms are an important step towards reducing emissions from mining and manufacturing.

40% of Australia's annual greenhouse gas emissions (185 Mt CO_2-e) are associated with mining and manufacturing activity including: the burning of fuels for heating, steam and pressure; fugitive emissions released during the mining, processing and transport of coal and gas, and non-energy related emissions occurring during the manufacture of products such as iron, steel and cement.

138 Mt CO_2-e of these emissions are produced by around 215 large facilities that are covered by the Australian Government's recently reformed Safeguard Mechanism. As a result of the reforms, which represent a significant step forward in addressing emissions, covered facilities (those emitting more than 100,000 Mt CO_2-e per year) are required collectively to reduce their net emissions by 37 Mt CO_2-e to 100 Mt CO_2-e in 2029–30.

The international competitiveness of Australia's largest industrial facilities will increasingly be influenced by their ability to reduce their emissions as the world decarbonises. This is a national effort which will require dedicated investment from companies, support from the Australian Government, and the backing of the workforces and communities involved.

There are currently no limits on the use of offsets to meet baselines under the Safeguard Mechanism, meaning some of the abatement will be financed by Safeguard facilities but take place elsewhere in the economy, mainly in the land, agriculture and waste sectors under the ACCU Scheme. If a facility surrenders ACCUs equal to more than 30% of its baseline, it must submit a statement to the Clean Energy Regulator (CER) setting out why onsite abatement has not been undertaken. The authority will monitor the use of ACCUs under the Safeguard Mechanism each year. The Government has indicated it will seek the authority's advice on the extent to which on-site abatement is being driven by the reforms, and whether any additional incentives are required, as part of a review of the Safeguard Mechanism in 2026–27.

Beyond the Safeguard Mechanism, the government should continue to explore opportunities to accelerate emission reductions at industrial facilities, including with a view to increasing the contribution of the sector to the achievement of Australia's 2030 target. Such opportunities include mandating international best practice for reducing methane emissions from flaring and for methane leak detection and remediation, requiring the sequestration of reservoir CO_2 emissions at all natural gas extraction facilities and exploring options for reducing methane emissions from open cut coal mines.

Transport

Accelerating the take-up of electric vehicles will provide a much-needed boost to emissions reductions and save motorists money.

Emissions from transport account for 21% (98 Mt CO_2-e) of Australia's greenhouse gases. Over half of those emissions come from light vehicles such as cars, utes and SUVs, and these emissions are growing. Australia is well behind the United States, Europe and many other countries when it comes to regulating the greenhouse gas emissions from passenger motor vehicles.

Battery-powered electric vehicles provide the ready solution for addressing emissions from Australia's passenger motor vehicle fleet. Based on the projected emissions intensity of the electricity grid in 2030, the authority estimates that for every 5% greater share of electric vehicles, emissions are reduced by around 2.5 to 2.6 Mt CO_2-e.

The market for electric vehicles globally is maturing, with the range and availability of electric vehicles at a variety of price points increasing. In Australia, prices for electric vehicles are currently still higher than for comparable fuel-combustion engine vehicles. However, fuel and maintenance costs for electric vehicles are lower, so motorists can save money over time. The associated reduction in pollution from cars will also benefit society.

The authority's leading indicator of transport emissions – the share of plug-in hybrid and battery electric vehicles in annual motor vehicle imports – has risen strongly from almost zero in 2018 to an estimated 7% in 2023. However, this is obviously still very low. Accelerating the uptake of electric vehicles is crucial because of the time it takes for the vehicle fleet to turnover – people typically own their cars for up to 15 years. Fuel combustion engine vehicles purchased today will still be on the roads as we near 2040.

The authority strongly supports the introduction of the Australian Government's proposed Fuel Efficiency Standard. This can play a significant role in driving the transition to electric vehicles, by capping and reducing each year the emissions allowed from new cars on sale in Australia. The Fuel Efficiency Standard should be introduced as soon as possible, with the aim of achieving zero tailpipe emissions no later than 2040.

Continuing to support the roll-out of electric vehicle charging infrastructure is also important and should take a variety of forms, including working with the state and local governments to address unnecessary regulatory barriers; working with the industry to ensure the public has ready access to information about the location availability and status of chargers; and ensuring sufficient investment is taking place in charging infrastructure, including in regional and rural areas.

Agriculture and land

Further investment in innovation and changes to farming practices are needed to secure reductions in agricultural emissions.

The agriculture sector's emissions were 82 Mt CO_2-e in 2022–23, or 18% of Australia's total emissions. Livestock is the biggest contributor to agricultural emissions, with cattle contributing over half and other livestock another quarter. Most agricultural emissions are difficult for farmers to abate. Although new options are emerging, trends in agricultural emissions over the past decade have generally followed livestock numbers, which in turn track seasonal conditions. Emissions have been rising following the breaking of the drought in many areas in 2020.

Some measures to reduce emissions from livestock and increase the efficiency of production are available now, through changing animal diet, supplements and finishing strategy, and optimising the herd structure and breeding strategies. Undertaking rigorous herd management practices, supplementary feeding and grazing management could result in measurable reductions in emissions from cattle by 2030.

Emissions of nitrous oxide from agriculture have been relatively stable in Australia, at 14 Mt CO_2-e in 2020–21. Just over a quarter of these emissions are associated with the use of fertilisers. Farmers could lower emissions by using fertilisers more efficiently and using less emissions intensive fertilisers.

The Australian Government should offer direct support to farmers to pursue emissions reduction opportunities of the kinds described above.

In addition, the government should fund a program to help farmers measure and report on their on-farm emissions, de-risk carbon farming and provide the information investors and lenders are calling for to help decarbonise their portfolios. Currently the sector lacks a comprehensive standardised reporting framework to enable reporting of emissions, with emissions and energy use within the agricultural sector not captured within Australia's National Greenhouse and Energy Reporting Scheme (NGERs). The authority will investigate whether the sector should be brought within the scheme in its 2023 NGERs review.

The ACCU Scheme – supported by demand from the Safeguard Mechanism – is the primary government measure for reducing emissions in agriculture and land use. However, participation of the agricultural sector in the scheme is limited. Around 2 million ACCUs (1.5% of total ACCUs) have been issued for agriculture projects in total. In contrast, 154 million ACCUs have been issued to projects that store carbon in the land.

The land sector, which accounts for changes in the amount of carbon stored in trees, vegetation, soils and harvested wood products, removed more carbon dioxide from the atmosphere than it released in the year to June 2023. It contributed net negative emissions of 64 Mt CO_2-e. Much of the activity in the land sector occurred on agricultural land, with emissions coming from land clearing and forest harvesting, but more carbon dioxide was removed by forests regrowing on previously cleared land.

The amount of carbon Australia can sequester in the land sector is dependent upon several factors, not least of which is that it represents a finite resource for which there are very important, competing uses, such as producing food and fibre, and providing a sustainable source of natural capital – biodiversity, clean water, and healthy soils. Balancing these requirements needs to be informed by science and economics, as well as rural and regional communities including First Nations peoples.

Better recognition and valuing of co-benefits from the land sector is needed. Management practices that encourage greater species diversity in tree plantings and revegetation, better integration with catchment and natural resource management planning will continue to further reduce rates of land clearing.

There are some hard decisions and trade-offs we, as a society and as individuals, need to make together for a successful transition to a net zero economy. These decisions will bring benefits and opportunities.

Australia will only achieve its emissions reduction targets if we, collectively as a society but also individually, are open to change. Australia's transition to net zero emissions is a transition all Australians need to participate in. For example, achieving Australia's climate goals will require the deployment of infrastructure at unprecedented scale and pace – such as solar farms and onshore and offshore wind farms, and the transmissions lines needed to carry the electricity they produce. However, not everyone wants poles, wires and batteries in their backyard or paddock, or offshore wind turbines interrupting their ocean view. Communities will need to choose between actions necessary to reduce climate change and other things they value. For Australia to play its part in the climate response, we collectively need to choose change and to change more quickly.

Gaining acceptance to develop and operate new infrastructure at the pace and scale required necessitates best practice consultation processes, fair, robust and transparent site selection processes, and equitable sharing of burden and benefits. For example, much of the additional electricity generation and transmission infrastructure to be constructed over the next decade will occur in regional areas and the First Nations estate. The Australian Government has committed $5.5 million to develop the First Nations Clean Energy Strategy to help identify priority reforms and areas for investment (DCCEEW, 2023t). The authority is of the view that the strategy should consider how to support best-practice consultation and benefit-sharing with First Nations Australians.

There's no doubting the important role planning and approval processes – including consultation and consents – play in allowing governments to take account of the economic, social and environmental costs and benefits of a project when making approval decisions. However, evidence is mounting to indicate approval processes are too slow. For its 2022 Integrated System Plan (ISP), the Australian Energy Market Operator's (AEMO) assumed development times (including planning and approvals) of 3 to 5 years for a windfarm and 2 to 3 years for a solar farm in scenarios.

In 2022 an EU Regulation granted renewable energy projects a 'public interest' status on a temporary basis, reversing the burden of evidence for certain environmental impact assessments, so that these assessments are only required in case of clear evidence of major adverse impacts on the environment.

Addressing delays in the planning and approvals processes in a way that appropriately balances competing objectives and ensures an equitable sharing of benefits and costs is the collective responsibility of governments across all levels, corporations – both developers and consumers – and communities and individuals. By cooperating, jurisdictions could accelerate implementation of renewable energy zones, permitting of grid related projects, and retirement of coal generators. With greater transparency, delays in the approval process could be identified sooner and addressed. Earlier and better consultation can guide actions that garner community acceptance and social licence to operate.

Time is running out for Australia to make a just transition to a prosperous, net zero economy - on our own terms.

Australia still has time to make a just transition to a prosperous, net zero economy, a transition made on Australia's own terms and that positions us to take advantage of the opportunities a net zero world presents. The longer we delay, the greater the risk that the transition will be dictated to us by the actions of others around the world.

As a small, open and emissions-intensive economy, reliant on inflows of foreign capital and export income as engines of growth, Australia can expect to feel the full force of the global transition to net zero emissions. Global momentum has never been greater, thanks in large part to the *Inflation Reduction Act 2022* in the United States, the European Union's Green Deal Industrial Plan and progress in implementing its Carbon Border Adjustment Mechanism. Other countries are also ramping up their action. More than three quarters of global emissions are now covered by national net zero targets.

On a trajectory to net zero emissions, governments, investors and consumers around the world will increasingly favour lower and zero emissions options. These changing preferences will reverberate along global supply chains for goods, services and finance, with important implications for the Australian economy.

Consequently, decarbonisation should not be viewed as a cost, but as a source of competitive advantage and one that we need to move quickly to realise. While some industries will decline, now is the time for Australia to seize the opportunity to attract and retain investment and to become a leading supplier of the critical minerals, low-carbon products and energy needed in a decarbonising world.

This includes lowering the emissions intensity of our exports, doing this at a faster rate than the countries we compete with, and anticipating and planning for the inevitable decline in demand for high emissions products, including our coal and gas exports.

Change isn't always easy but it's necessary if we are to leave a stable, hospitable climate for future generations. A well-managed transition should ensure the burdens and benefits are equitably shared. It should lead to new, well-paid, sustainable jobs, improve peoples' health, and restore the environment, nation-wide. The announced Net Zero Authority is a step forward towards preparing our communities for the transition. It could become a model for further preparation, planning and communication with communities about the changes we all need to make as the climate changes.

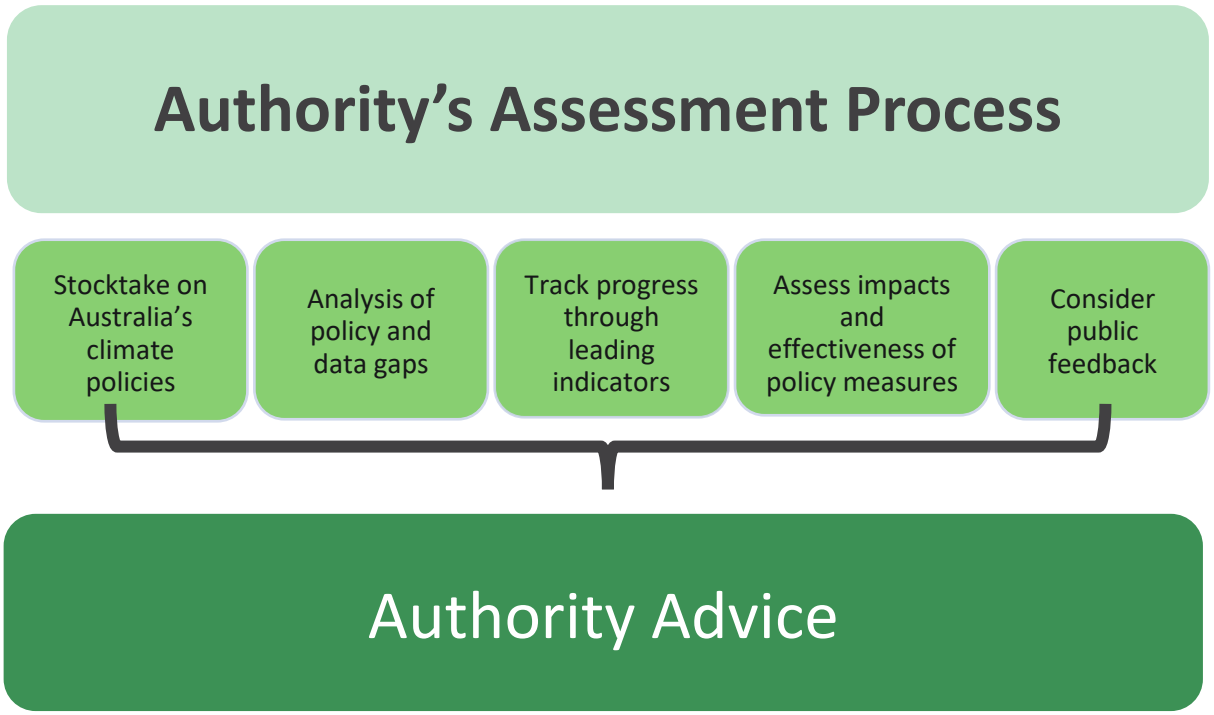
Next year the Climate Change Authority will examine many of these issues further as it undertakes a special review of sectoral technology and emissions pathways to net zero emissions by 2050 and provides advice on Australia's 2035 emissions reduction targets.

A new level of scrutiny and transparency will ensure accountability for Australia's progress.

The authority's annual progress reports play an important role in ensuring the government is held accountable to Parliament for its progress towards emissions reduction targets and for its climate change policies generally. Our advice and the government's annual climate change statements which our advice informs, help ensure the Australian community is kept up to date about Australia's progress, as well as about relevant international developments, climate change policy and the effectiveness of Commonwealth measures in contributing to the achievement of the targets.

To that end, we investigate policy settings, their effectiveness and barriers that stand in their way. By bringing a new level of scrutiny and transparency, we intend to embed accountability for the effectiveness of everyone's – including federal and state governments, corporations, investors and communities – response to climate change.

In its annual progress reports, the authority critically assesses Australia's climate policy infrastructure. This year our focus has been a policy stocktake at the federal level and developing leading (or forward-looking) indicators of progress in the real economy (see Chapter 3). Australia's climate policy landscape has expanded rapidly and with good intention, however achieving the 2030 target is not a given. Policy momentum needs to translate into actual emissions reductions, but there is a lag between the introduction of policy measures and measurable emissions outcomes. Australia can't afford long delays between policy announcements and results.



The government has, and continues to, strengthen accountability and transparency in climate policy. Government reporting keeps Australians better informed on progress to implement our targets and priorities. This could be enhanced through the government:

- publishing detailed information on progress to implement each climate measure and the contribution of each measure to emissions reductions
- by enhancing the availability and transparency of climate-related information and data sets.

The authority intends to assist. Last year's Annual Progress Report established baselines for targets, emissions and trends. In this year's report we establish the baseline for policies that drive Australia's progress towards its targets and what governments can do to get – and then keep – the nation on track for an ambitious, resilient, just and prosperous transition. In next year's report, the authority will have a focus on assessing implementation of these policies. Towards this end, and for those interested, we have recently created a Climate Policy Tracker, which can be viewed at www.climatechangeauthority.gov.au.

Right now, there are risks to meeting the 2030 target, but we can respond to them. The 2030 target is still achievable. The challenge is: 'are we willing to do what it takes?'

Recommendations

Chapter 1 – Climate change science, impacts and global policy developments

1. Provide further support for Australian climate change research through a coordinated, expanded national research program on climate science. Under the research program:
    - Australia's network of monitoring stations, buoys, and access to satellite data should be maintained and expanded.
    - Research focusing on compounding and cascading hazards, climate system tipping points, seasonal forecasting of extreme weather events, Southern Ocean science, Antarctic sea-ice and ice sheets should be given additional attention.
    - First Nations people should lead the incorporation of First Nations' knowledge into our understanding of the climate system and the solutions to climate change.
2. Lead the establishment of best-practice protocols for conducting extreme weather event attribution studies to ensure different studies are comparable and clearly understandable.

Chapter 2 – Climate-related wellbeing

3. Secure agreement with all levels of government on a framework to ensure that climate change risk and adaptation are factored into all policies and programs and their implementation, including but not limited to critical infrastructure, building codes, health, social services policies (such as those on public housing), transport, environmental protection, national security, and sectoral decarbonisation plans.
4. Legislate for the National Climate Risk Assessment to be undertaken, and the National Adaptation Plan updated, a minimum of every 5 years, and for ongoing monitoring and evaluation of the Plan.
5. Facilitate the development of a First Nations peoples-led framework to engage with First Nations people on decarbonisation and adaptation matters, building on the principle of free, prior and informed consent.
6. Facilitate a First Nations peoples-led action plan to enhance First Nations workforce opportunities in decarbonisation and adaptation and remove barriers to employment.
7. Support adaptation and transition decision-making, and improve transparency and accountability, by developing simple and accessible tools to explain climate and energy concepts.

Chapter 3 – Reducing Emissions

Electricity

8. Coordinate with state and territory governments on a comprehensive and integrated plan to reach the 82% renewable generation target, including development and implementation of a mechanism to ensure the necessary investment in the supply of renewable electricity.
9. Together with the state and territory governments provide the following information to the Australian Energy Market Operator each financial year for it to publish (in a similar format to the Connections Scorecard): number of renewable energy projects submitted for development approval or EPBC Act referral, number of renewable energy projects provided development consent or approval under the EPBC Act, and the average time from submission to approval.
10. Build on the recommendations in the Samuel Review to prioritise and expedite the EPBC Act assessment process for large-scale renewable energy generation projects, while maintaining rigorous consideration of environmental impacts.

11. Respond to the Community Engagement Review on energy infrastructure no later than 30 April 2024, and implement measures to support best practice community engagement and benefit sharing, including with First Nations communities, as soon as possible thereafter.
12. Work with state and territory governments to accelerate the rollout of network infrastructure to support the deployment of large-scale renewable energy projects.
13. Work with state and territory governments to provide incentives to ensure sufficient renewable energy storage projects that can provide between 4 to 12 hours of storage are deployed by 2030 (through the Capacity Investment Scheme or other mechanisms).
14. Provide funding via ARENA and the CEFC to accelerate the commercialisation and deployment of deep storage options.
15. Implement measures to ensure there is adequate abated domestic gas supply for firming renewable electricity generation and other purposes, while the domestic use of gas is phased down over time with the deployment of lower and zero emissions alternatives.
16. Coordinate with state and territory governments to agree on timing for the retirement of fossil fuel generators and measures to support local workforces and communities affected by closures.

Industry and resources

17. Accelerate the early phase-out of higher global warming potential refrigerants, where alternatives are available, including bans for pre-charged equipment imports.
18. Review the opportunities and report on barriers and incentives for pre-mine drainage of coal mine methane from open cut mines.
19. Introduce measures complementary to the Safeguard Mechanism for reducing fugitive emissions from the oil and gas sectors, including:
    - implementation of international best practice measures for reducing methane emissions from flaring activities that do not perversely encourage venting emissions.
    - development of standards in line with international best practice to support methane leak detection and repair across equipment, technologies and operational practices.
    - introduction of requirements for existing oil and gas facilities to sequester all CO_2 emissions produced.

Transport

20. Implement a Fuel Efficiency Standard for new light vehicles as soon as possible which progressively reduces the emissions intensity to zero by no later than 2040.
21. Complete a review of policy and regulatory settings for electric vehicles by 2024 (including subsidies to purchase electric vehicles, fees and charges to own and drive electric vehicles and taxes and tax concessions) to ensure incentives are effective and efficient in reducing emissions and driving electric vehicle uptake.
22. Develop metrics to monitor progress of the rollout of electric vehicle charging infrastructure in the first National Electric Vehicle Strategy annual review. This should take account of the infrastructure needs of regional and rural Australia in terms of the number, distribution and speed of chargers.
23. Work with the electric vehicle charging industry during the first National Electric Vehicle Strategy annual review to develop policies and if needed, regulation, to ensure that:
    - public electric vehicle chargers report in real time whether chargers are available,
    - there is a consistent approach to electric vehicle charging formats, including available plug types, payment systems and applications necessary to find and access chargers.
24. Consider immediate policy and regulatory options to reduce emissions in existing road vehicles such as by allowing and incentivising lower emissions fuel blends.
25. Encourage uptake of lower emissions heavy vehicles by:

- undertaking a cost benefit analysis for a Fuel Efficiency Standard for heavy vehicles by the end of 2024, to adopt a standard to reduce emissions from heavy vehicles over time.
- reviewing regulatory barriers to zero emissions truck uptake and addressing these by the end of 2024.

Agriculture

26. Fund an extensive challenge-based program of research and early-stage commercialisation of agriculture emissions reduction technologies.
27. Develop a program to support farmers to measure, reduce and disclose their emissions in line with an established government standard, provide advice on actions farmers can take to reduce emissions, and help them to implement high priority actions.
28. Explore the potential for time-limited incentives to support broad uptake of fertilisers with nitrification inhibitors.

Land Use, Land-use Change and Forestry

29. Enhance the delivery of impartial, practical guidance and support to landholders to enable them to make informed decisions on sequestering carbon on their farm to best suit their business, including retaining carbon for their own business, supplying the ACCU scheme offsets market, or establishing farm forestry and agroforestry.

Waste

30. Work with state and territory governments to update the national waste policy action plan to specify achievable actions to increase the avoidance, recovery and recycling of organic waste across its lifecycle to reduce organic waste going to landfill. These actions should clearly address the barriers limiting the diversion of organic waste from landfill, including government operated landfill sites.
31. Work with states and territories to require landfill gas capture at all landfill sites where there is sufficient gas flow. Where gas flow is not sufficient, regulation should require other treatment of landfill gas to oxidize methane, such as biocovers.

Chapter 4 – Cross-cutting issues

Carbon markets

32. Develop and publish a National Carbon Market Strategy.

Sequestration

33. Develop a sophisticated modelling capability to analyse and forecast sequestration, for example through a partnership between the government, industry, and academia.
34. Incentivise the development of long-lived and engineered forms of sequestration by supporting research and development and as technologies develop, through carbon markets or other financial instruments.
35. Take a leading role to reduce the domestic and international regulatory barriers preventing the uptake of engineered sequestration and carbon dioxide removal technologies methods.

Electrification of the built environment

36. Extend the Small-scale Renewable Energy Scheme post-2030 to ensure continued support for electrification and expand the scheme to include household batteries and private electric vehicle chargers.

37. Establish methods to track the numbers, locations and speed of private electric vehicle charger installations, to inform metrics on the successful roll-out of charging infrastructure. The government should publish these figures each year, and ensure the data is available to AEMO for grid management purposes.
38. Implement policies to increase the accessibility of electrification options. This includes, for example, through provision of zero interest financing to reduce up-front costs and provision of funding for public and Indigenous housing to convert to all-electric.
39. Work with state and territory governments to agree on a coordinated, nationally consistent approach to phasing out new gas connections for residential and small commercial buildings and phase-out for existing gas connections.
40. Identify and remove barriers to installing private vehicle chargers and vehicle-to-grid capability, while ensuring building codes adequately mitigate safety risks.

Research and development, technology and innovation

41. Include a Research, Development & Demonstration (RD&D) Strategy as a key feature of Australia's Net Zero Plan. The strategy should consider the need for dependable framework conditions that promote innovation, safeguards competitiveness, and amplifies co-operation between government and private sector, as well as tracking progress towards goals.

Federal, state and territory government cooperation

42. As part of development of the Net Zero Plan, develop a set of agreements with the state and territory governments for coordination and cooperation on climate change mitigation, adaptation and resilience, and Australia's transition to a net zero economy.

Report roadmap

This report is structured as follows:

- Chapter 1: Climate change science, global impacts and international developments
- Chapter 2: Climate-related wellbeing: impacts, adaptation and transition
- Chapter 3: Reducing emissions
- Chapter 4: Cross-cutting issues

Additional content and references are contained in a separate appendix.

This report addresses all elements of our analytical framework (Figure 3) and incorporates our independent research and analysis and consideration of the input we received through submissions, survey responses and conversations on a wide range of topics. The authority extends its thanks to the hundreds of contributors for their valuable input. You can see the non-confidential submissions on our website and see how we've used your input throughout this report. We will continue to consider it in developing our future reports, including sectoral pathways and 2030 targets next year.

Figure 3: Analytical Framework

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For more information about the work of the Climate Change Authority, visit our website at https://www.climatechangeauthority.gov.au/.

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