Australian Government

Australia's Net Zero Plan

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Note on data

Unless otherwise specified, throughout the Net Zero Plan financial years (e.g. 2023-24) are presented as calendar years (e.g. 2024).

Disclaimer

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Acknowledgements

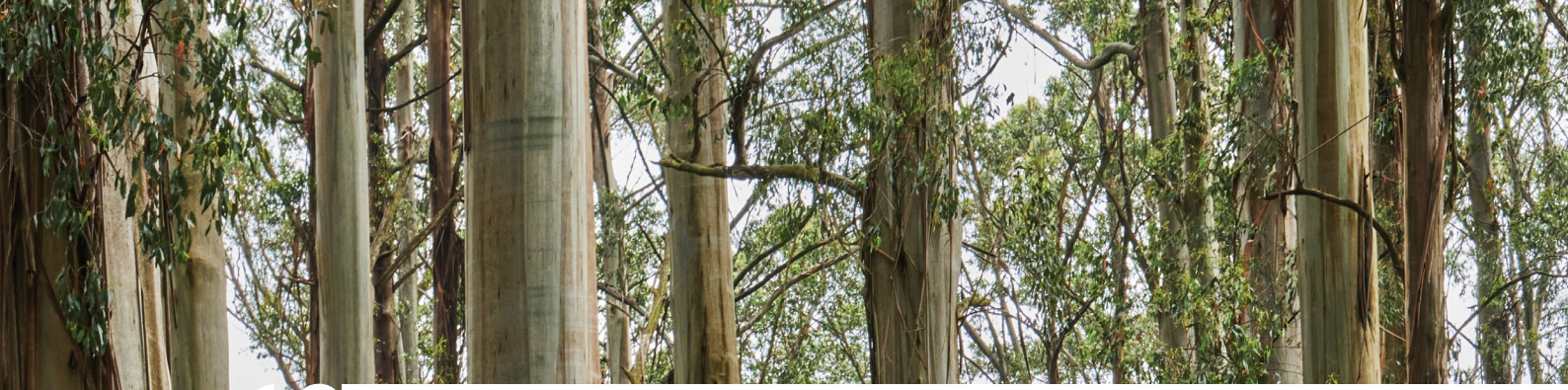
The Australian Government acknowledges the advice of Climate Change Authority which has informed the Net Zero Plan and six sector plans.

The Australian Government thanks all stakeholders and community members that participated in consultation.

Acknowledgement of Country

The Australian Government acknowledges the Traditional Owners of Country throughout Australia and their continuing connection to land, skies, waters and community. We pay our respects to their cultures and their Elders past and present.

First Nations knowledge is critical to living sustainably in Australia. The knowledge that Aboriginal and Torres Strait Islander peoples hold as Custodians of Australia's land and natural resources can and should underpin a fair and equitable net zero transition.



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Foreword

The Australian Government is acting on climate change because it is the right thing to do for our environment, and the smart thing to do for our economy.

Climate change is real and is having a real impact on our farmers, our regions, our communities and our economy.

Working together, we can create the good jobs our people and communities need, while making sure we pass on the healthier environment our children deserve.

The global shift to clean energy is already well underway, and represents one of the biggest economic transformations since the Industrial Revolution. It presents Australia with an enormous economic opportunity.

If we move now and get it right, we can set Australia up for a new era of growth and prosperity.

For Australia, the best way to preserve our way of life and protect our natural environment is to build on our national advantages.

We are home to the resources and minerals needed for batteries, solar and electric vehicles.

We are the sunniest continent on earth and we lead the world in solar research and technology.

We can use these advantages to deliver affordable and reliable energy for our country, hundreds of thousands of new jobs in our regions and suburbs and secure billions of dollars in global investment.

This is all about making the most of our strengths, making our economy more competitive, dynamic and resilient. And making more things here in Australia.

In the last three years, the private sector has grasped the economic opportunity, driving total investment above $97 billion since 2022.

Government has set Australia's ambition and committed over $70 billion for decarbonising Australia's economy over the coming decades – supporting new industries, investing in renewables, building transmission and helping households electrify.

Households and small businesses are playing their part too.

Australia now leads the world on rooftop solar. More than 1 in 3 households have installed solar panels.

Our Cheaper Home Batteries program is helping households and businesses boost storage.

Millions of Australians are taking practical steps to permanently reduce their power bills, reduce pressure on the national grid and do the right thing by the environment at the same time.

Together, we are cutting emissions, creating new jobs and securing Australia's place in a changing global economy.

The Climate Change Authority has provided their independent, expert advice to Government on setting a target for 2035.

A target of 62-70% emissions reductions, they advise:

> 'is in Australia's national and economic interest. Committing to an ambitious target is necessary to maximise the chances of Australia capturing the full potential benefits of the global clean energy transition.'

> 'is ambitious, achievable, in Australia's national interest, and is based on robust analysis of the best available evidence. It anchors Australia's commitment to the global goal of pursuing efforts to limit warming to 1.5°C, the threshold beyond which multiple climate systems risk irreversible breakdown.'

We have accepted their advice and Australia's 2035 target is 62-70% below 2005 levels by 2035.

This is a responsible target, backed by a real plan and proven technology.

It is ambitious, because it accelerates progress towards net zero, and it is achievable, because we can meet it by continuing what is working and building on the strong foundations we have laid over the past three years.

Alongside our plan, we are establishing a new $5 billion Net Zero Fund within the National Reconstruction Fund (NRF). Drawing from and refocusing existing NRF capital, it will support major investments by large industrial facilities in decarbonisation and energy efficiency, and scale up manufacturing low emissions technologies.

We are also setting aside more than $1 billion to make clean fuels here.

And we are putting more than $170 million towards initiatives to help households and communities decarbonise, improve energy efficiency and accelerate the roll out of kerbside and fast electric vehicle charging options.

We are updating the CEFC's investment mandate to include a new focus on the rapid roll out of renewable projects to drive down electricity prices, and committing up to $2 billion more to the CEFC General Account, to be drawn down in line with these changes.

Treasury modelling published alongside this Net Zero Plan is clear.

A credible plan to achieve net zero will give businesses the confidence they need to seize the opportunity and invest in Australian jobs.

By contrast, delay and drift will only drive investment away, drive power prices higher and add to pressures on the cost of living and put Australian jobs at risk. Doing nothing is simply not an option.

Acting on climate change strengthens Australia's place in the global economy as well.

Over 84% of global GDP is covered by net zero commitments including our major trading partners China, Japan and South Korea.

Australians can be proud of the contribution we have already made.

In 2015 the world was on track to heat up 4 degrees Celsius above pre industrial levels.

By 2024, global efforts had shifted this trajectory down to just less than 3 degrees.

Put simply, global action is making a difference and Australia is playing its part.

Every fraction of a degree of global temperature change will matter.

Working together, we can continue to reduce our emissions, grow our economy and strengthen our nation.

The Hon Anthony Albanese MP
Prime Minister of Australia

The Hon Chris Bowen MP
Minister for Climate Change and Energy

Executive summary

Australia has already made real progress in reducing emissions.

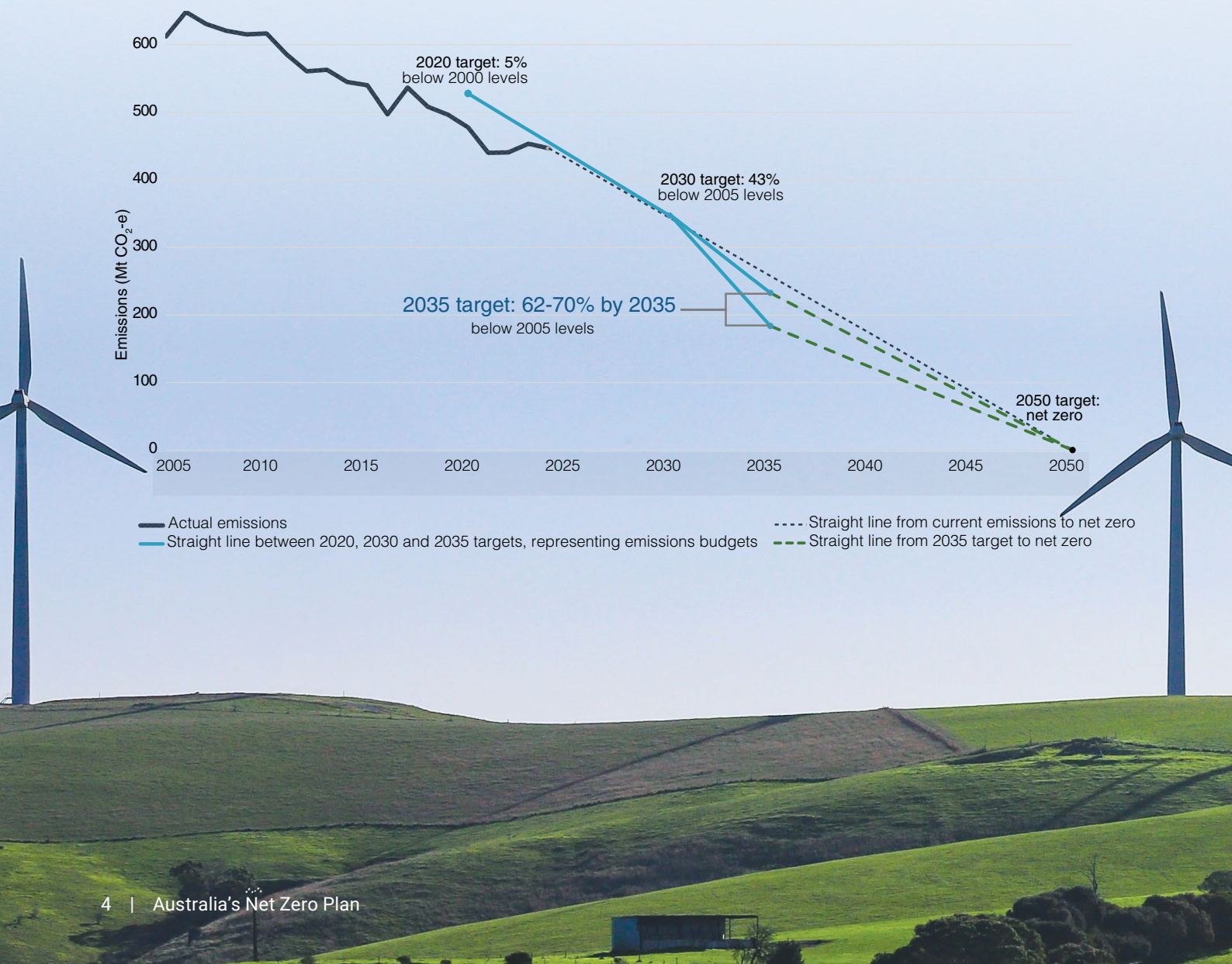
So far, the actions taken by government, businesses and households reduced Australia's emissions in 2024 by 27% on 2005 levels. Our most recent data for 2025 indicates emissions are now down 29%.

That's equivalent to taking the entire Australian vehicle fleet off the road - twice.

The Government has adopted the Climate Change Authority's recommendation and set Australia's 2035 target.

Australia will reduce emissions by 62-70% on 2005 levels by 2035 as the next step on our path to net zero.

Figure 1: Australia's emission reduction targets



Five decarbonisation priorities

To reach our 2035 target, and net zero by 2050, government will focus effort on five decarbonisation priorities:

- **C**lean electricity across the economy
- **L**owering emissions by electrification and efficiency
- **E**xpanding clean fuel use
- **A**ccelerating new technologies
- **N**et carbon removals scaled up

Priority one: Clean electricity across the economy

Decarbonising and expanding the electricity network

Our electricity network needs modernisation. Australia's aging coal fired power stations are too expensive and unreliable to support our growing energy needs.

After a period of underinvestment and uncertainty, rebuilding our energy system is a large, complex and capital-intensive task, but one that needs to be done and we are getting on with it.

In Australia, harnessing our abundant renewable energy resources, firmed by gas, hydro and batteries, is the cheapest way to replace retiring generation assets and meet growing energy demand.

What we have done:

- In three years, we have added over 18 GW of renewable energy – wind and solar – to the grid. Already, over 40% of Australia's two major grids are renewable.
- Wind and solar capacity is up 45% - more than 4 times the capacity of the Snowy Hydro Scheme and enough to power over 6 million households.
- Australia leads the world on rooftop solar. More than 1 in 3 households have installed solar panels. There's now more household solar capacity than all remaining coal fired power stations in Australia.
- Australian households and businesses with solar are installing home batteries at speed through our Cheaper Home Batteries scheme. In just over two months since launch, more than 55,000 home batteries with total storage capacity of over 1 GWh have been installed around Australia – a pace that could see Australia hit its 1 million batteries target before 2030.

We have:

- **Committed over $20 billion in Rewiring the Nation**, making clean energy more accessible and affordable for Australian consumers. Through Rewiring the Nation, we are investing in new network infrastructure at the lowest possible cost to consumers
- **Supported nation building projects, such as Marinus Link**, that will unlock economic development in Tasmania's north, secure greater cleaner energy including hydro, and deliver better energy security for the mainland
- **Launched the Capacity Investment Scheme**, providing a long-term revenue safety net for investors by underwriting contracts to support new renewable generation and dispatchable projects. The Scheme ensures more renewable energy projects get built sooner
- **Recapitalised the Clean Energy Finance Corporation**, with $2 billion added to its special account earlier in 2025 to finance the deployment of clean energy technologies
- **Enabled offshore wind generation development**, with six declared priority offshore renewable energy zones
- **Created the National Renewable Energy Priority List**, supporting accelerated planning and approvals processes for priority renewable energy infrastructure
- **Accelerated households generating and storing their own electricity**, through our $1 billion Home Energy Upgrades Fund, Solar Banks program for apartments and our Cheaper Home Batteries Program
- **Invested in TAFE Centres of Excellence and improved community benefit** ensuring energy regions see the full benefit of the transition with good, lasting jobs and higher standards for developers.

As we work towards our 2035 target, we will:

- **Update the CEFC's investment mandate** to include a new focus on the rapid roll out of renewable projects to drive down electricity prices, and commit up to $2 billion more to the CEFC General Account, to be drawn down in line with these changes.
- **Unlock long term investment in large scale firmed, renewable generation and storage capacity**, informed by the review of National Electricity Market (NEM) wholesale market settings
- **Streamline approvals for renewable energy projects**, particularly through reforms to the Environment Protection and Biodiversity Conservation Act
- **Continue to drive investment in consumer energy resources to reduce pressure on the grid**, and Virtual Power Plants (including in community, commercial and industrial properties)
- **Explore ways to further unlock investment in renewable energy** to accelerate emissions reduction in the electricity sector while maintaining energy security.

Priority two: Lowering emissions by electrification and efficiency

Electrifying wherever possible and improving energy performance and materials efficiency

We have the technology now to electrify many parts of our economy and we are working to make sure the incentives, support and regulations are in place to accelerate this.

In 2022, electric vehicles were 1.8% of new light vehicle sales across Australia. In just three years that has climbed to 10%. This is being driven by consumer demand – as more affordable, cheaper to run cars enter our market.

Electric buses are now on our roads in almost every state and territory of Australia and transport companies are investing in electric trucks for back-to-base delivery.

Industry are taking steps to electrify where they can, and Government is providing support to reduce upfront capital costs and support companies to make the investments needed for a low emissions future.

Households are electrifying rapidly – switching to induction stoves and heat pumps, replacing gas heaters with reverse cycle air conditioners.

There have already been over 4 million solar installations under the Small-Scale Renewable Energy Scheme, supporting households to upgrade energy systems including heat pumps and water heaters.

Treasury modelling shows that investing in electrifying your household will bring benefits over the long term with lower bills (Figure 6.2).

Swimming pools, sports clubs and community centres are doing their bit too, upgrading and improving facilities around Australia.

We have:

- **Introduced the New Vehicle Efficiency Standard**, which will reduce emissions intensity from new passenger vehicles by 60 per cent by 2030, and help Australians choose cleaner, cheaper to run vehicles, including electric vehicles
- **Committed $1 billion in Household Energy Upgrades**, helping Australians upgrade their homes and install things like hot water heat pumps, insulation, air conditioning, batteries and double glazing
- **Expanded the Social Housing Energy Performance Initiative to $1.1 billion** (including $800 million from the Commonwealth) to support energy upgrades to over 100,000 social and affordable housing properties by 2028-29
- **Created the $475 million Driving the Nation Fund**, supporting innovation in cleaner transport and the rollout of electric vehicle (EV) charging infrastructure on key highway routes and at car dealerships and repairers
- **Allocated $1 billion through Powering the Regions** Safeguard Transformation Stream and Industrial Transformation Stream to help heavy industry and other large regional facilities reduce emissions from gas processes, electrify industrial processes and invest in energy storage.

As we work towards our 2035 target, we will:

- **Expand energy performance programs**, including those that help households and business better understand the energy performance of appliances and commercial buildings like the National Australian Built Environment Rating System (NABERS), the Greenhouse and Energy Minimum Standards (GEMS) Scheme and Commercial Buildings Disclosure program
- **Expand the Nationwide House Energy Rating Scheme** to rate existing homes across Australia, helping home buyers, renters and owners make informed choices about energy upgrades
- **Accelerate the rollout of EV kerbside and fast charging with a $40 million program,** using existing power poles around the country to deliver more EV charging options faster, at lower cost, giving flexibility to owners without off-street parking.
- **Work with community sporting facilities to improve lighting and install solar and batteries with a $50 million program**, reducing emissions, energy costs and allowing clubs to put more money back into grassroots sports
- **Develop a Demand-side Statement of Opportunity** (DSOO) to inform the market where there are opportunities to use energy more efficiently, helping to make our demand growth more manageable.
- **Review the New Vehicle Efficiency Standard** in 2026 to assess the policy's effectiveness, refine regulatory systems and mechanisms, and consider the framework in light of the 2035 target
- **Implement the Circular Economy Framework** to double circularity by 2035.

We will also explore:

- Options for reducing barriers to electrifying small to medium facilities and industrial processes
- How to ensure business, industry and communities have the best signals, opportunities and frameworks to improve energy performance
- Ways to drive down emissions across Australia's transport fleet faster, including across different modes of transport, working with states and territories
- Ways to improve solar and battery recycling, recovering key components so we can continue to reuse materials in support of the transition
- Working with states and territories to maximise the benefits new buildings can achieve by harnessing the efficiency and cost effectiveness of electrification.

Electric car charging, Australia.

Priority three: Expanding clean fuel use

Switching activities that can't be electrified to low carbon alternative fuels

Some areas of the economy can't electrify because the right technologies don't exist yet, or they're currently too expensive.

High heat manufacturing, like making steel and cement, and long-distance transport by road, air and sea, are hard to electrify right now.

This is where alternative fuels have a big role to play over the decade to come – low carbon liquid fuels, biomethane, renewable hydrogen and renewable ammonia.

For sectors that rely on coal, like iron and steel making, natural gas is an immediate option to reduce emissions until lower carbon fuels become available.

Australia is already a significant supplier and exporter of biomass for refining into low carbon fuels overseas.

By building a low emissions fuels industry in Australia, we can lower our emissions, boost our fuel security and seize new export opportunities.

If Australia is successful in realising its renewable export potential, the global emissions displaced by Australian low-emission exports in 2050 could be greater than Australia's net emissions in 2024.

We have:

- **Created a $250 million Innovation Fund** for low emissions fuels, including sustainable aviation fuel and renewable diesel, helping reduce costs for first-mover LCLF producers
- **As part of our Future Made in Australia agenda, committed $8 billion over 10 years to accelerate renewable hydrogen investment** through the Hydrogen Production Tax Incentive and Hydrogen Headstart
- **Created new fuel quality standards** for renewable diesel, unlocking supply in Australia
- **Amended the National Greenhouse and Energy Reporting Scheme** to enable reporting of specific low emissions fuels delivered through shared infrastructure.

As we work towards our 2035 target, we will:

- **Invest $1.1 billion in new low carbon liquid fuel production here in Australia**, providing drop-in fuel alternatives to support farmers, truck drivers, airlines and industry with options to reduce emissions
- **Explore ways to incentivise take-up** of low carbon fuels in support of building domestic production.
- Work with states and territories to redirect waste streams as feedstocks for production of low carbon liquid fuels

Priority four: Accelerating new technologies

Innovating to expand emissions reduction options

Australia leads the world in solar research and technology.

Researchers are pioneering breakthroughs in new battery production, solar recycling, feed supplements and carbon capture and storage.

Across Government, over $2.2 billion has been invested in research and development directed at energy outcomes since 2022-23, with agencies like Australia's Renewable Energy Agency deploying millions each year to support early stage research and commercialisation in renewable technologies.

Historically, technology costs have fallen for key renewable technologies faster than expected. For example, back in 2011, Treasury projected solar photovoltaics (PV) would contribute 3% of electricity generation in 2024. However the cost of PV fell 75% in the 5 years to 2014 – and in 2024, PV contributed 17%.

The innovative solutions we invest in today could drive significant abatement towards the end of the coming decade.

We have:

- **Set the Australian Renewable Energy Agency (ARENA) on a sustainable footing** to support decarbonisation over the decade to come
- **Established the $1.5 billion Future Made in Australia Innovation Fund**, supporting development and deployment of new technologies in everything from green metals production, clean energy technology manufacturing and low emissions fuels
- **Enabled the Clean Energy Finance Corporation (CEFC)** to invest in critical R&D opportunities in clean energy, including through the $500 million Powering Australia Technology Fund and $200 million Clean Energy Innovation Fund
- **Established an Expert Panel led by Australia's Chief Scientist** to evaluate new approaches to measuring fugitive methane emissions
- Invested $87 million over 10 years to establish the **Zero Net Emissions Agriculture Cooperative Research Centre.**

As we work towards our 2035 target, and as part of decarbonising our industrial facilities, we will:

- **Review Safeguard Mechanism policy settings** in the financial year 2026-27, to ensure the scheme's design is appropriately calibrated and effectively delivering emissions reductions in line with Australia's targets, informed by Climate Change Authority advice about the extent to which on-site abatement is being driven by the reforms
- **Establish a new $5 billion Net Zero Fund as a sub-fund of the National Reconstruction Fund (NRF)**, drawing from and refocusing existing capital to support major investments by large industrial facilities in decarbonisation and energy efficiency, and scale up manufacturing low emissions technologies
- Informed by the Government's Strategic Examination of R&D, look for ways to streamline and scale up research collaborations that power the transition
- Undertake a landmark study with the UN Environment Program to improve understanding of methane emissions, important for steel and energy supply chains

We will also explore:

- Strengthening strategic partnerships with governments, industry and international partners to progress important climate technologies with the potential to drive down emissions beyond 2035
- How we can ensure Australian industry remains globally competitive by delivering a level playing field for our biggest emitters like cement and steel in a decarbonised economy

Priority five: Net carbon removals scaled up

Scaling up carbon removals to balance residual emissions

Regardless of how effectively we reduce emissions, all available analysis indicates our economy will still be emitting greenhouse gases in 2050 – carbon removals are a critical part of reaching net zero.

Land based abatement, particularly reforestation, is the most cost effective abatement to help reach net zero emissions in 2050. There are great economic opportunities for land holders to diversify their incomes through earning Australian Carbon Credit Units (ACCUs).

Methodologies like savanna burning also allow First Nations land managers to use their knowledge of managing country to sequester more carbon and earn revenue from (ACCUs).

But we need to invest in a range of options for future sequestration. New carbon removal technologies will be increasingly important as 2050 approaches, but most need further development before they will be ready to be deployed at scale.

Already, carbon capture and storage projects are being implemented around Australia.

We have:

- **Strengthened the ACCU scheme** enabling land managers to earn money for eligible carbon storage on their land, which has already abated 169 million tonnes of emissions to date
- **Invested $73.8 million in a Support Plantation Establishment Program**, increasing future plantation forest resources available for processing
- **Invested $65 million in projects** that will use emerging technologies like direct air capture and mineral carbonisation to offset hard-to-abate industrial processes

As we work towards our 2035 target, we will:

- Improve data collection and analytical capabilities to better understand land-use changes and opportunities for integration of carbon removal projects within agricultural production systems
- Examine the carbon, biodiversity and agricultural productivity co-benefits that expanded landscape restoration efforts could deliver, strengthening the climate resilience of regional Australia
- Open a second round of the **Carbon Capture Technologies Program** for $52 million to continue to accelerate the development of new carbon management technologies, critical to reaching net zero by 2050
- Deliver a Carbon Dioxide Removal (CDR) Roadmap with the CSIRO

Canberra, ACT, Australia.

Stable institutions create policy certainty and crowd in investment

Achieving our 2035 target, and then net zero emissions by 2050, will require sustained effort and investment over decades – backed by strong, stable institutions.

The Australian Renewable Energy Agency and Clean Energy Finance Corporation were created in 2012 and between them incubate new technologies through development, to commercial scale deployment.

The Australian Government has expanded on this through the establishment of the National Reconstruction Fund Corporation to drive investment in high-value industry transformation.

Through the Climate Change Act we have legislated targets and accountability measures to provide policy certainty and make sure Australia's progress is transparent. The Minister for Climate Change and Energy makes an annual statement to Parliament.

The Climate Change Authority is empowered to provide independent advice, informed by science, tracking progress towards targets and advising Government on new targets.

We legislated the Net Zero Economy Authority, ensuring communities and workers, particularly in regions with transitioning industries can, access the opportunities of net zero.

We have legislated our Future Made in Australia ambition; an agenda to seize the economic opportunities from the global shift towards net zero and low emissions exports, providing long term assurance to industry that our commitments are resolute.

These institutions create a stable operating environment, where the forward pathway is clear, there are long term legislated mechanisms to support the transition and accountability to make sure we stay on track.

Government will continue to work to remove barriers to investment. In September 2025 we launched Australia's Investor Front Door, making it easier to develop major, transformational projects across Australia.

We are reforming environmental approvals to protect our environment and unlock more efficient assessments for clean energy projects.

Cooperation with all levels of government will be critical, for investments and delivery of our national targets. They are key delivery partners – with many already leading the way.

Six sector plans: reducing emissions in every sector

There are many different pathways to achieve emissions reductions across key sectors of the economy – electricity and energy; industry and waste; resources; built environment; agriculture and land; and transport.

We know from experience, the opportunities for emissions reduction will vary across sector. Our emissions to date have come from changes to land use and the growth of renewables in the electricity sector. But to reach our 2035 target, and net zero by 2050, every sector will need to play a stronger role.

For some, the decarbonisation pathway will be more rapid because technologies are mature, cost effective and ready to scale (e.g. electricity and energy).

Others face a slower and more gradual route because technologies are at an earlier stage of development or more barriers stand in the way (e.g. agriculture).

Many sectors are dependent on the progress of others, particularly those reliant on the supply of renewable energy from the electricity and energy sector (e.g. transport, built environment).

Over the next decade, immediate gains will be felt quickest in electricity and energy sectors, largely through electrification. This supports transport and built environment emissions reductions.

As we progress towards net zero, reducing emissions in hard to abate sectors like industry and resources, and agriculture, will become more important.

Sector plans accompanying this Plan set out immediate opportunities to drive abatement and longer term goals and barriers to achieving abatement goals.

Electricity & Energy

Energy performance; and the supply of electricity, liquid fuels, and gas

Industry

Alumina and aluminium, cement and concrete, chemicals and plastics, food and beverages, iron and steel, manufacturing and additional industries, other metals refining and smelting, pulp, paper and paperboard, waste and resource recovery

Resources

Oil and gas extraction, processing, liquefaction, coal mining and processing, mining and processing of metallic and non-metallic minerals, resource exploration and support services

Built Environment

Residential, commercial and public buildings as well as urban open spaces and water infrastructure

Agriculture and Land

Livestock, cropping, on-farm energy use, fisheries, forestry and land use

Transport

Light and heavy road transport, rail, maritime, aviation, including transport infrastructure's embodied emissions

Navigating the Plan

The Net Zero Plan is divided into four parts:

Figure 2: Structure of the Net Zero Plan

Part 1 Climate Change in Australia (Chapters 1-3)

sets out the opportunities and challenges of the net zero transition and how the Plan provides a stable and predictable framework to help all Australians navigate the transition. It highlights how the Net Zero Plan, complemented by 6 sector plans provides a clear roadmap to support a fair and orderly transition, through Australia's 2035 target. It sets out Australia's current emissions profile and how existing climate policies have set us on the path to net zero.

Part 2 Australia's Net Zero Pathway (Chapters 4-7)

sets out Australia's 2035 target and the pathway through which Australia can transform its economy to capitalise on opportunities from the global transition and reach net zero emissions by 2050. This is based on analysis by the Treasury, the CCA and CSIRO, alongside insights from extensive engagement with stakeholders. This Part sets out the Australian Government's 5 decarbonisation priorities to drive action to achieve net zero by 2050.

Part 3 Enabling the Transition (Chapters 8-11)

describes how the transition to net zero will require coordinated action across the economy. Getting these settings right will help share benefits across the country and build confidence, allowing the transition to accelerate. It sets out the groundwork that government has laid to finance the transition, provide support for all transitioning regions, and build the jobs and skills required to realise new economic opportunities.

Part 4 Working Together (Chapters 12-14)

discusses the different roles of governments, the private sector, academia and research institutions, communities, First Nations peoples and our international partners. It showcases how First Nations people's connection to Country and culture is fundamental to climate action in Australia, and how strong First Nations' leadership is creating opportunities to reduce emissions and ensure the benefits of the transition flow to their communities. It also discusses the importance of working with local communities to build social licence for the transition and deliver tangible benefits for all Australians.

1

Climate change in Australia

Playing a strong and active role in global climate action is indisputably in Australia's national interest.

A credible pathway and policy stability will ensure Australia attracts investment, remains globally competitive and reduces emissions.

This Plan represents the next step in our pathway and articulates how we will build on progress to date in collaboration with industry, investors, First Nations peoples, communities and international partners.

Chapter 1

Sets out the opportunities and challenges of the net zero transition

Chapter 2

Sets out how the Net Zero Plan, complemented by 6 supporting sector plans, provides a clear pathway to support a fair and orderly transition

Chapter 3

Sets out Australia's emissions outlook, detailing our current emissions profile and suite of climate policies and measures

1. Climate change risk and opportunity for Australia

Key messages

- While we can no longer avoid climate impacts, every action we take today towards our climate goals will help avoid the worst impacts on Australian communities and businesses.
- We are working alongside communities to respond and adapt to the impacts we can no longer avoid.
- Record investment in clean energy is driving global emissions reductions, and creating opportunities for new industry development and growth in Australia.

1.1 The climate is already changing, with major implications for Australia

Australia is experiencing the profound and accelerating impacts of climate change. Australia's average land temperature has increased by approximately 1.5°C since 1910.[1] Australians are already living with increasing impacts from climate change, and are witnessing more frequent and severe events, such as droughts, floods, bushfires and heatwaves.[2]

Many communities have experienced recent hazards and disasters, such as ex-tropical cyclone Alfred in New South Wales and Queensland, Tasmanian West Coast bushfires in 2025, and drought conditions affecting large areas of Australia's southern states. Climate change is also contributing to the emergence of new types of adverse events, such as South Australia's ongoing algal bloom, which is partly driven by extended periods of warm ocean temperatures.[3] Events like this underscore that new impacts will emerge as climate change intensifies.

Australia's National Climate Risk Assessment (NCRA) provides the first comprehensive government-led assessment of the risks Australia faces as a result of climate change. It presents a sobering future, underscoring that climate-fuelled extreme weather events are increasing pressure on our natural ecosystems and the livelihoods and communities that rely on them. Climate disasters are impacting our infrastructure, including our transport networks, hospitals, schools and homes, and these costs are escalating over time. This is affecting our economic productivity and imposing significant costs on regional and national economies, from recovery and rebuilding efforts (Box 1.1). For example, the 2022 NSW floods caused $6.4 billion in insured losses alone.[4]

The Insurance Council of Australia estimates natural disasters are costing Australian homeowners around $4 billion each year, and are increasing insurance premiums.[5] Changes to seasonal conditions over the period 2001–2020 have reduced annual average agricultural profits by an average of 23% relative to the previous 50 years. Reductions in rainfall in southern Australia could exacerbate these losses.[6]

Climate risks are connected, and impacts in one sector will compound and amplify others (Box 1.1).

Slow-onset climate change impacts may also threaten our net zero transition if not well understood and managed. Rising temperatures, extreme heat and heatwaves increase health risks, and heat-related mortality and make it harder to work outdoors.

Individuals and households already disadvantaged are the most vulnerable to such impacts of a changing climate.

The risk of vector-borne diseases (e.g. malaria and dengue fever) will rise with increased temperature, rainfall and floods in some areas, putting pressure on the healthcare system. Crop yields will decrease with declining rainfall (e.g. in southwest Western Australia). Many ecosystems, which support clean water and air, food security and regulate the local climate, will be impacted or lost.[7]

First Nations people will also continue to experience unique and increasing impacts from climate change, which threatens the health of and access to Country, with flow-on detriments to social and physical health and wellbeing.

Disruptions to supply chains and telecommunications can also lead to enhanced security risks both in Australia and the region.

Every fraction of a degree increase in temperature escalates the risks and impacts of climate change.

Stabilising global temperatures through mitigation efforts will reduce some, but not all, climate impacts. Adaptation is needed regardless of how successful our emissions reduction policies are, with impacts such as sea level rise locked in for centuries to come. Australia's National Adaptation Plan (NAP) establishes a framework for adapting to the risks identified within the NCRA.

The NAP sets the foundation for the Australian Government to work collaboratively with state, territory and local governments, communities, First Nations peoples, businesses, and non-government organisations to build their adaptive capacity. It recognises the important roles a resilient environment and community play in supporting climate adaptation and sets out key priorities to build our capacity to manage climate extremes.

Adapting effectively to climate change and enhancing resilience will support Australia's transition to net zero by improving infrastructure resilience, reducing costs and boosting productivity.

1.2 Climate change is an urgent global challenge

Australia cannot – and is not – tackling climate change alone.

Australia, as one of 195 signatories of the Paris Agreement, is committed to holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels.[8] This commitment requires global emissions to fall rapidly and be at or below net zero in the second half of this century.[9]

Box 1.1: The cascading impacts of intense storms in Broken Hill

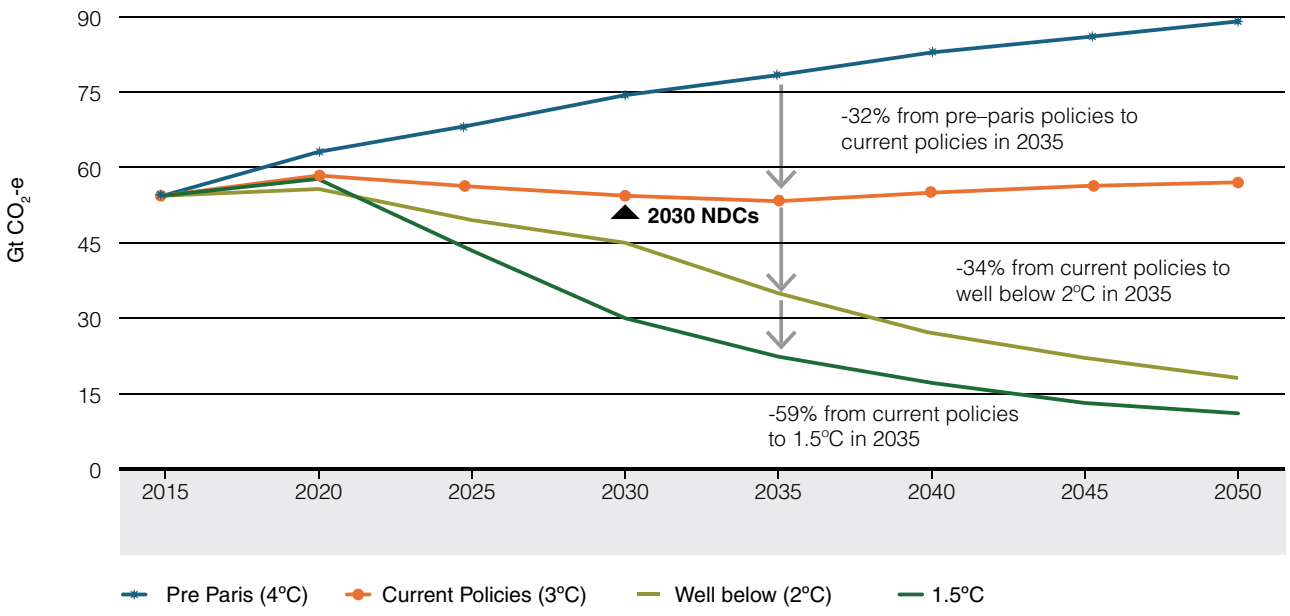
On 17 October 2024, a short but intense storm destroyed 7, and damaged 2, transmission towers supplying power to the greater Broken Hill area in NSW. Over the following 2 weeks 12,700 properties experienced intermittent power outages as transmission infrastructure was repaired, and backup gas turbines experienced faults and underwent maintenance. These disruptions also caused telecommunication network outages that affected 3,930 fixed-line and NBN services.

An inquiry by the NSW Parliament Committee on Environment and Planning found that, in addition to significant economic losses, these outages led to:

- widespread health impacts – residents with chronic health conditions were at risk of being unable to operate required electronic medical devices
- unstable power supply, voltage fluctuations and power spikes – which caused lasting damage to essential appliances like refrigerators and spoilage of food and medications
- sewerage and water pump failures – causing a backup of untreated sewerage, and water sources running low
- limited fuel availability – with some stations closed due to their reliance on telecommunications to operate their pumps and an increased demand for fuel to operate generators. This led to extensive queues to obtain fuel.

Source: Parliament of NSW, Legislative Assembly Committee on Environment and Planning, The electricity outages affecting Far West NSW in October 2024, Report 2/58 – June 2025 (The electricity outages affecting Far West NSW in October 2024).

Figure 1.1: Global emissions trajectories. Source: Treasury analysis of Byers et. al. 2022; IPCC 2022.



Collective international efforts are showing significant progress. In 2015, prior to the Paris Agreement, global policies had the world on track to warm by 4°C above pre-industrial levels by 2100 (Figure 1.1).[10] Current policies are on track to cut global emissions by 32% compared to pre-Paris levels by 2035 and lead to just less than 3°C of warming above pre-industrial levels by 2100.[11] There is still work to do, to align with a 2°C or 1.5°C trajectory.[12]

Despite a shifting global environment, countries across the world continue to affirm their commitment to the Paris Agreement and net zero goals. The Climate Change Authority (CCA) considered recent challenges to multilateral cooperation, including the implications of the United States' planned withdrawal from the Paris Agreement, and they concluded it is unlikely to materially hinder Australia's decarbonisation efforts. Around 80% of global GDP is covered by national net zero commitments, including Australia's major trading partners such as China, Japan and the Republic of Korea.[13] This share rises to over 84% when subnational commitments are included.*

The Climate Change Authority advised:

> "The global transition is inevitable, already occurring, and accelerating—driven by rising global incomes and energy demand, falling clean energy costs and expanding low-emissions technology options, and rising concerns about the risks and impacts of climate change."
>
> 2035 Targets Advice, page 4

Global energy intensity (energy use per unit of GDP) declined by an average of 2 per cent per year between 2010 and 2019 and 1.2 per cent per year from 2020 to 2023.[14] Similarly, carbon intensity (carbon dioxide emissions per unit of energy) fell on average by 0.3 per cent annually from 2010 to 2019.[15] These trends reflect structural changes in the global energy system, including improved energy efficiency, a shift away from coal and the growing role of renewable energy.

* *Including sub-national commitments from US states would raise coverage to at least 84%. Source: Net Zero Tracker, Energy and Climate Intelligence Unit, Data-Driven EnviroLab, NewClimate Institute, Oxford Net Zero, 2025 (Net Zero Tracker | Welcome).*

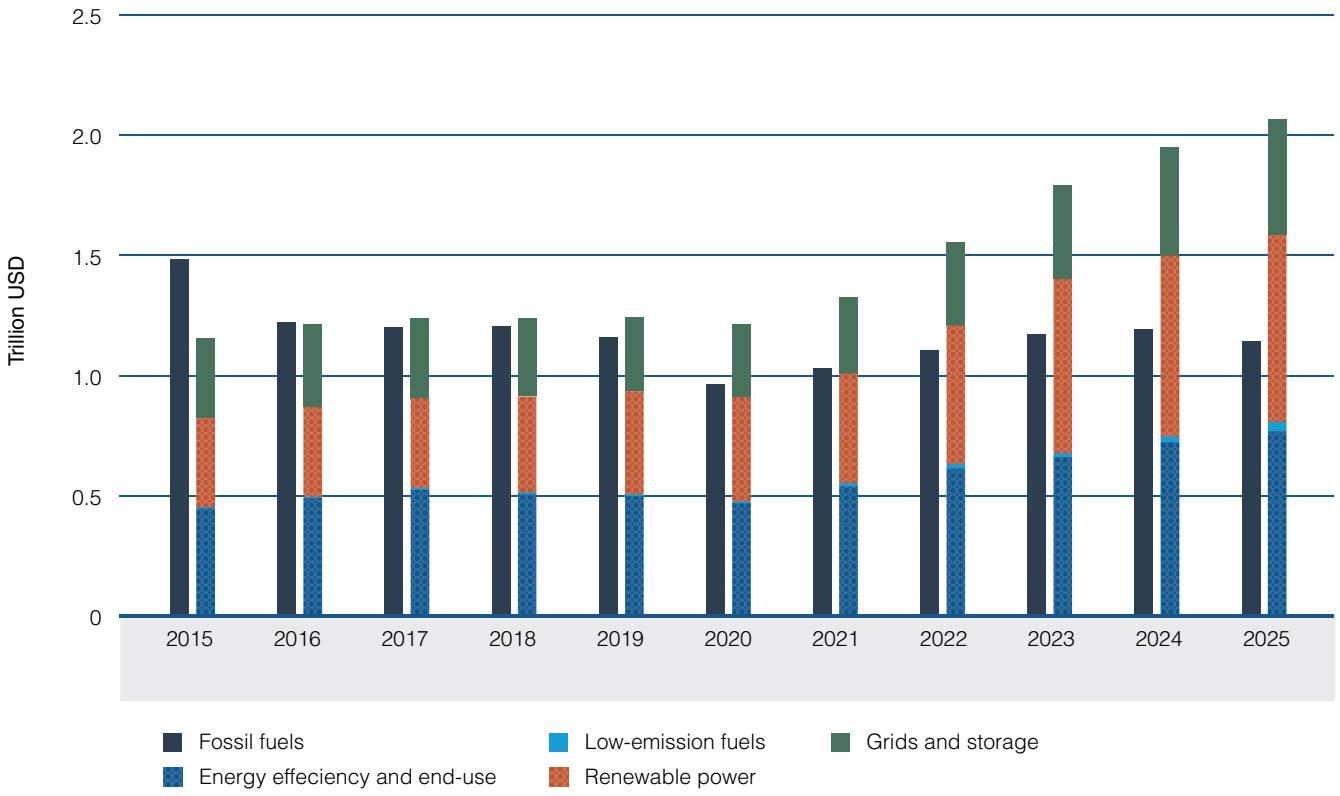
The plummeting costs of wind and solar have seen them become the fastest growing sources of electricity,[16] and clean energy investment and jobs now outnumber those in the fossil fuel industry.[17] The IEA reports that global investment in clean energy infrastructure, efficiency and electrification are set to rise to USD2.2 trillion in 2025, double the investment in oil, coal and natural gas (Figure 1.2).[18] They project that renewables are set to meet around 90% of global electricity demand growth out to 2027,[19] and that demand for, and investment in, fossil fuels is set to decline over the next 10 years.[20]

The IEA attributes the clean energy investment surge to a combination of emissions reduction goals, technological gains, energy security imperatives, and countries seeking to establish stronger positions in emerging global markets.

In Australia, investors continue to prioritise climate action to protect long-term returns, strengthening net zero commitments, establishing interim targets and developing climate investment strategies in recognition of the clear economic case for the global transition.[21]

Regardless of geopolitical challenges, these economic fundamentals suggest the transition to net zero will accelerate. Australia stands to gain from shaping global efforts, building our influence and access to emerging markets, while diversifying to better manage external shocks.

Figure 1.2: International investment in energy 2015–2025[22]



1.3 Australia's opportunity in the net zero transition

Australia's fossil fuel resources have contributed to our economy, regional employment and trade relationships for decades. Resources and energy account for around 11.4% of Australia's GDP, with Australia being the world's largest exporter of iron ore and alumina. Coal and natural gas were our second and third largest exports by value respectively (after iron ore) in 2024.[23] Over two-thirds of the total energy produced in Australia is now exported as some form of raw or refined fossil fuel energy.

As global energy systems shift toward lower-emissions sources, including renewables, Australia must adapt to secure our ongoing prosperity and stability.

Australia has world-leading renewable resources, rich metal and mineral deposits, a skilled workforce, strong trade partnerships and a stable investment environment. These advantages will enable Australia to sustain economic growth and remain competitive as the world transitions away from fossil fuels towards lower emissions goods and services.

Capital is flowing most readily into jurisdictions with clear transition plans, frameworks that support sustainable finance, business and industry growth, and stable and consistent policy that enables long-term decision-making.[24]

Pursuing our comparative advantages and incentivising efficient investment will also enhance productivity outcomes for Australia. This can be achieved by accelerating energy performance, increasing investor certainty, encouraging innovation, enhancing market designs, and addressing barriers to infrastructure deployment such as slow planning and approval processes. The Government is focused on reforms that will enhance productivity and competitiveness across the economy, providing flow-on benefits for the transition.

A lithium mine processing plant Western Australia, Australia.

1.4 A clear pathway will help communities, industry and government successfully navigate the transition

How exactly the transition unfolds from here is uncertain, with both challenges and opportunities ahead for Australia. Technology costs are hard to predict, community support for solutions can accelerate or delay the deployment of infrastructure, and international developments or new breakthroughs can drive new market dynamics. Coupled with unexpected economic and climate shocks, this means there are upside and downside risks for Australia's transition.

The transition will need to be navigated in a way that ensures fair and equitable outcomes for all Australians. This means working with regional and remote communities, including First Nations, to ensure everybody has a clear understanding of what the transition means for their local area and are supported to participate in key decision-making processes.

A long-term pathway to net zero builds confidence in the transition and helps to navigate through uncertainty. Strong and stable policy drives investment, and predictable systems of review and improvement bring flexibility to adjust policies and approaches as things change.

Swan Valley, Western Australia, Australia.

Over the last 3 years, significant progress has been made in building a stable policy framework to enable climate action, track progress and refine our efforts over time.

This includes passing Australia's *Climate Change Act 2022* in September 2022, which:

- legislated our 2030 target to reduce emissions by 43% on 2005 levels, and our long-term goal of net zero by 2050
- expanded the role of Australia's independent CCA to provide independent advice on targets and progress
- enhanced accountability and transparency by requiring the Minister for Climate Change to table an Annual Climate Change Statement in parliament, reporting on progress in our emissions reductions commitments.

This provides a robust cycle to review and refine our policies and measures over time to ensure Australia remains on track to net zero (Figure 1.3).

The Climate Change Authority advised:

> "Australia's existing policies – anchored by national emissions reduction legislation, sectoral initiatives and funding programs – provide a strong platform for progress… There are opportunities either to expand their reach or introduce select initiatives to address gaps and barriers to implementation."
>
> 2035 Targets Advice, page 57

The Net Zero Plan builds on this framework, providing a long-term pathway for Australia's transition and priorities for further action.

Figure 1.3: Set-do-review-refine framework

2. The Net Zero Plan and sector plans

Key messages

- The Net Zero and the 6 sector plans set out a clear pathway and actions to ensure a fair and orderly transition for Australians and provide the private sector with greater confidence to continue investing.
- The plans are informed by extensive community and industry engagement as well as independent expert advice.

2.1 Guiding Australia to net zero emissions by 2050

The Net Zero Plan sets out how Australia can transition to net zero emissions by 2050, and the steps the Australian Government is taking to achieve this. It sets out Australia's 2035 target, the next big milestone in our net zero journey.

The Plan responds to calls from investors, business, industry, unions, farmers, community, First Nations peoples and conservation groups, who have all stressed the need for clear guidance on Australia's pathway to net zero.

A fair and orderly transition will:

- **Deliver affordable, clean and reliable energy for all Australians**, minimising cost of living and household pressures by leveraging Australia's vast renewable energy potential.
- **Revitalise Australia's industrial competitiveness** capitalising on our natural advantages in resources and clean energy.
- **Ensure opportunities and benefits flow equitably** to communities, providing the supports needed for transitioning regions.
- **Enable early, consistent action** for an orderly and efficient transition to net zero.
- **Accelerate investment, innovation and knowledge-sharing** by leveraging Australia's strategic partnerships.

The 6 sector emissions reductions plans cover all major sources of emissions across the economy. They outline how each sector can contribute to Australia's transition and provide detail on the emissions reduction opportunities and transition pathways for each sector.

Solar farm, South Australia, Australia.

2.2 The plans and 2035 target are grounded in independent, expert advice

The 2035 target and plans draw on independent expert advice from the CCA and Commonwealth Scientific and Industrial Research Organisation (CSIRO), and analysis from across government.

Economic modelling by the Australian Treasury explores 3 scenarios for potential net zero pathways and their economic impacts in the context of the global net zero transformation. This work, set out in the companion document 'Australia's Net Zero Transformation: Treasury Modelling and Analysis', provides insights into how Australia can efficiently achieve emissions reductions over time, and how to maximise opportunities.

> The government's comprehensive approach ensures the pathways outlined in the plans are robust, credible and underpinned by the best available evidence.

As required under the *Climate Change Act 2022*, the Minister for Climate Change and Energy requested the CCA provide advice on a national 2035 emissions reduction target. This advice was received on 12 September 2025.

In addition, parliament requested the CCA provide advice on sectoral pathways, as a Special Review under the *Climate Change Authority Act 2011*. The CCA's advice has directly informed the Australian Government's decision and this Net Zero Plan, and is referenced throughout.

2.3 The plans and 2035 target have drawn on extensive consultation with the community and industry

The Net Zero Plan, 2035 target and Sector Plans were informed by extensive community and stakeholder consultation. This included the CCA's public consultations in 2023 and 2024 across 3 reports, which cumulatively received 565 submissions. The CCA also conducted industry roundtables, meetings with unions and workforce representatives, regional community workshops, First Nations engagement, ministerial and senior official council meetings with state and territory governments, and engagement with local government organisations.

The Australian Government also drew on a wealth of engagement, input and insights from industry and communities, collected through related policy work. This included submissions and information provided during development of the Future Gas Strategy, National Hydrogen Strategy, Capacity Investment Scheme and National Electric Vehicle Strategy, the National Health and Climate Strategy and others. This engagement has reinforced that all sectors and stakeholders play a role in the transition, and the importance of enabling and encouraging broad participation (Figure 2.1).

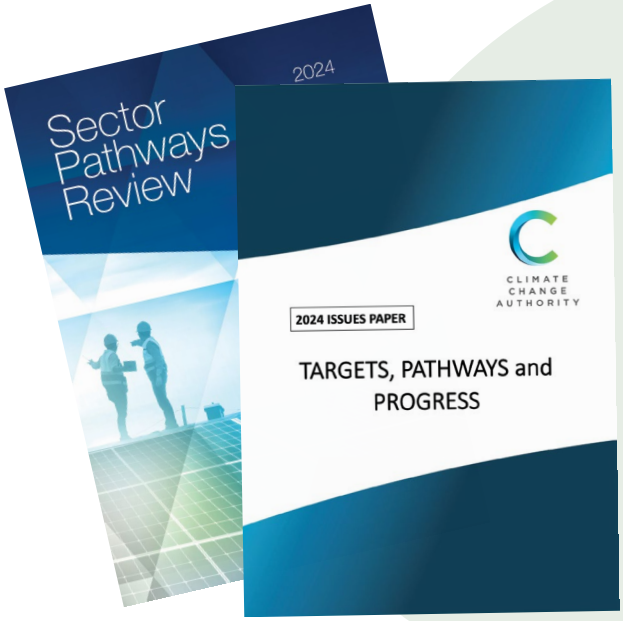


Figure 2.1: Key messages by stakeholder cohort

Communities and regions:

- Communities are leading work underway to chart the energy transition locally. They are eager to be involved, but are looking for assistance from governments and collaboration with business.
- Upfront costs and access to information remain challenges to taking action and will require government assistance to overcome.
- Regional communities already face specific place-based challenges, including access to health and social services, housing, and the right training. Developing place-based solutions, which fulfill these community needs is key to accelerating the pace of the energy transition.
- Communities support the mainstreaming of climate considerations across all areas of government policy and adopting approaches that recognise the interlinkages between government policy decisions in different areas (e.g. the health and wellbeing implications of increased active transport).
- Coordination is needed between levels of government, communities and business to deliver an orderly transition.

Workers and unions:

Many workers are interested in the opportunities of new industries and want to have the skills to take part. This training must be targeted at the right time and the right place.

- A fair and orderly transition will deliver high-wage and secure jobs in safe and inclusive environments.

Business and investors:

- Businesses are ready to invest in the net zero transition. A stable and navigable investment environment is essential for facilitating capital flow to the transition.
- Australia is competing globally for investment. An ambitious target will help to signal the appetite for investment, and underpinning policies will make the target achievable by accelerating capital attraction.

First Nations communities:

- Net zero project proponents must seek free, prior and informed consent from Traditional Owners when operating on Country.
- Indigenous businesses are eager to join the supply chains of renewable projects, helping to unlock prosperity for First Nations communities.
- Climate change is a threat to Country and the linked cultural practices of First Nations peoples. Disruption of Country and culture takes a significant toll on social and emotional wellbeing. Government should work in partnership with Traditional Owners to understand how best to act to protect Country and empower Traditional Owners to look after Country.

Youth

- The best climate action will also protect the environment for future generations.
- Support must be offered to the most disadvantaged through the transition, to deliver climate justice.
- Young people want to see resilient communities that can withstand climate impacts, and where they can support local action.
- Communities want a say in co-designing climate actions to ensure they work for people, especially regional and First Nations communities, and people with disabilities.

3. Australia's emissions and outlook

Muswellbrook, New South Wales, Australia.

Key messages

- Australia's emissions are coming down. Our current policies and measures put us on track to achieve our 2030 target of 43% if we stay the course.
- National emissions were 27% below 2005 levels in 2024. Our most recent data for 2025 indicates emissions are now down 29%.
- These are real reductions supported by strong policies, including the 82% renewable electricity target and Safeguard Mechanism.

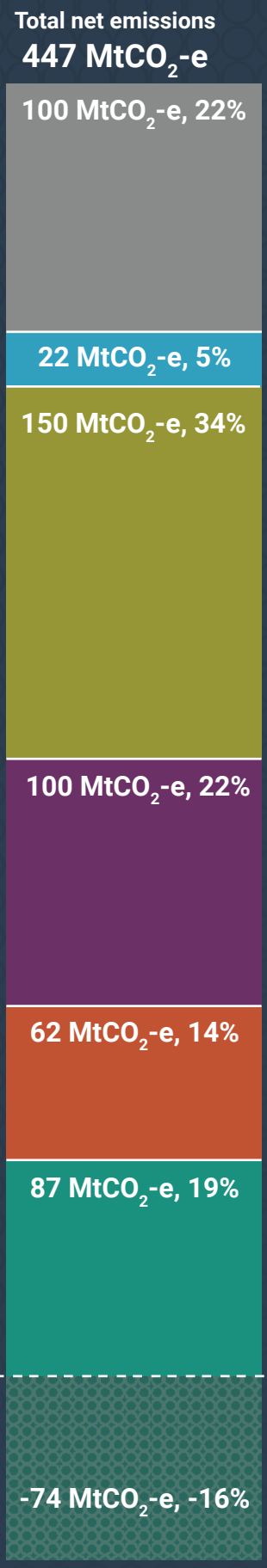
3.1 Australia's current emissions profile

Australia has a world-class system to track its greenhouse gas emissions. This allows Australia to understand emissions sources, drivers and trends, monitor and evaluate the effectiveness our policies, and implement measures to reduce them. Our system enables transparency and accountability – Australia publishes comprehensive annual reports and data to fulfil Australia's international reporting obligations under the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement. Australia also publishes quarterly emissions updates to ensure governments, industry and investors have the latest information to support their decisions. This information is used to inform the Australian parliament and the public on progress toward national emissions targets.

Emissions come from a range of economic activities. Australia's emissions reduction targets and reporting framework cover carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and synthetic greenhouse gases such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6).[25] Australia's largest source of greenhouse gas emissions is the burning of fossil fuels to generate electricity, followed by the combustion of fossil fuels to drive our transport and resources sectors.

The Net Zero Plan considers emissions across 6 major emissions sources, representing key sectors of Australia's economy (Figure 3.1).

Figure 3.1: Australia's emissions by sector, 2024 (note: totals may not sum due to rounding)[26]



Transport

The transport sector covers light and heavy road transport, rail, maritime vessels, aviation, and the construction of transport infrastructure and support services. The sector directly contributes 22% of Australia's annual emissions; the largest single source of emissions is light vehicle road transport. Indirectly, the transport sector accounts for emissions through the materials used for manufacture of vehicles and infrastructure such as roads.

Built Environment

The built environment sector covers residential, commercial, and public buildings as well as urban open spaces and water infrastructure. The sector directly accounts for around 5% of Australia's emissions, mainly through combustion of fuels for space and water heating, cooking and construction, and leakage from refrigerants. Indirectly, it accounts for further emissions through the energy and materials used in construction and operation. For example, the built environment sector is indirectly responsible for almost half of the emissions from electricity use.

Electricity and Energy

The electricity and energy sector covers the generation of electricity, manufacture of petroleum products, the supply of gas, and other related services. These functions underpin Australia's economy and are currently the largest source – approximately 34% – of Australia's annual emissions.

Resources

The resources sector covers the exploration and production of minerals, oil and gas, and coal resources. Production includes resource extraction and, depending on the commodity, any additional on-site processing as well as limited minerals processing. The sector also covers mine closure, decommissioning and rehabilitation. The sector contributes significantly to Australia's economy, especially through exports. It also contributes about 22% of Australia's annual emissions.

Industry

The industry sector covers the manufacturing and processing of goods, for domestic use and as exports. It spans 9 priority subsectors including waste and resource recovery, manufacturing, iron and steel, cement and concrete, metals refining and smelting, and waste and resource recovery. The sector contributes significantly to Australia's economy and employment and accounts for 14% of annual emissions.

Agriculture

The agriculture and land sector covers farming, land management, forestry, and fisheries. Agriculture emissions, primarily in the form of methane from livestock (particularly cattle and sheep) and manure, nitrous oxide from agricultural soils, and on-farm fuel use, contribute 19% of Australia's annual greenhouse gas emissions.

Land

The land sector contains vegetation and soils that can both emit and sequester carbon dioxide; it is currently a net carbon sink (that is, it sequesters more than it emits) equivalent to 16% of Australia's annual emissions

3.2 Australia has already made progress in reducing emissions

Since 2005, domestic policy settings, technology advancements and the effects of global events have had a major impact on Australia's emissions. While emissions from transport and some energy subsectors (such as LNG production) have grown since 2005, others, such as agriculture and electricity, have reduced.[27]

Australia's national emissions were 447 million tonnes of carbon dioxide equivalent (Mt CO_2-e) in 2024, 27% below 2005 emissions. The latest preliminary data for 2025 shows a further reduction to 436 Mt CO_2-e, which is 29% below 2005 emissions (Figure 3.2).

Australia has seen emissions reductions due to:

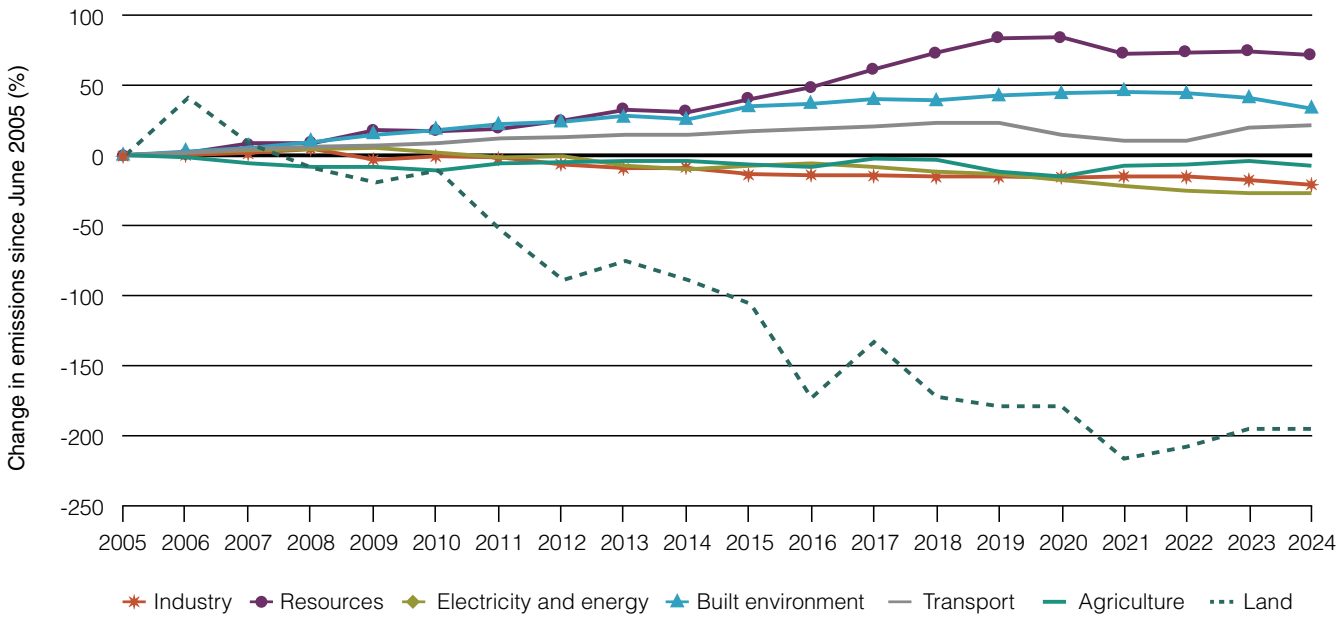
Land sector becoming and remaining a net sink. The sector contributed 13% of national emissions in 2005, but now is a net sink equivalent to over 16% of national emissions in 2024.[28] This is due to several factors including state and territory policies to reduce land-clearing, declines in harvesting of native forests and expansion of forest cover including through plantation establishment.

Reduced electricity sector emissions resulting from the rapid growth in solar and wind deployment across the country, replacing coal-fired generators as they retire. This growth reflects the combined impact of national, state and territory renewable energy policies and a significant reduction in renewable technology costs. In 2024, a record 7.5 GW of new renewable electricity capacity was added, of which over 3 GW was rooftop solar.[29]

Strengthening of the Safeguard Mechanism and Australian Carbon Credit Unit (ACCU) Scheme which provide clear, long-term policy signals and options to support emissions reductions across the economy. Some of the more recent emissions reductions observed can be attributed to these policies. Further details on these policies can be found in Box 3.2 – Safeguard Mechanism and Chapter 9 – Carbon Markets.

Australia's climate action has resulted in a gradual decoupling of ongoing economic growth from national emissions. The emissions intensity of the Australian economy reduced by more than 55% between 2005 and 2024, and emissions per capita fell by more than 46%.[30]

Figure 3.2: Percentage change in emissions by sector since June 2005

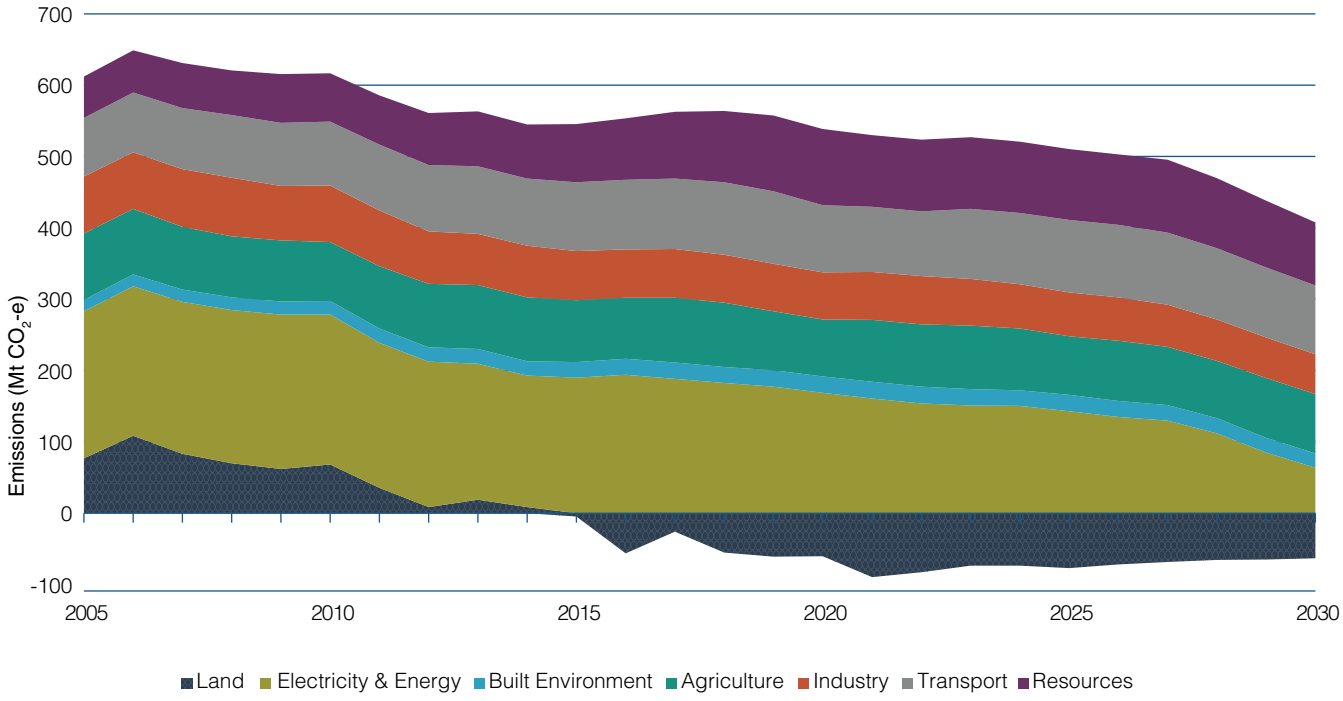


3.3 Major policies since 2022 provide a strong foundation for further emissions reductions

Over the past 3 years, Australia's emissions outlook has improved substantially with the implementation of a robust set of national emissions reduction policies.

The latest emissions projections show that with current policies, Australia is on track to meet the 2030 target on an emissions budget basis and is just shy of meeting the point-in-time target, reaching 42.6% below 2005 levels in 2030.

Figure 3.3: Emissions projections by sector, 2005 to 2030 (Note: Inventory data used up to 2024, 2024 Emissions Projections data used from 2024–2030)



Box 3.1 Uncertainty in emissions projections

Australia's emissions reporting provides a basis for governments and industry to calibrate policy and investment over the long-term to achieve Australia's emissions targets.

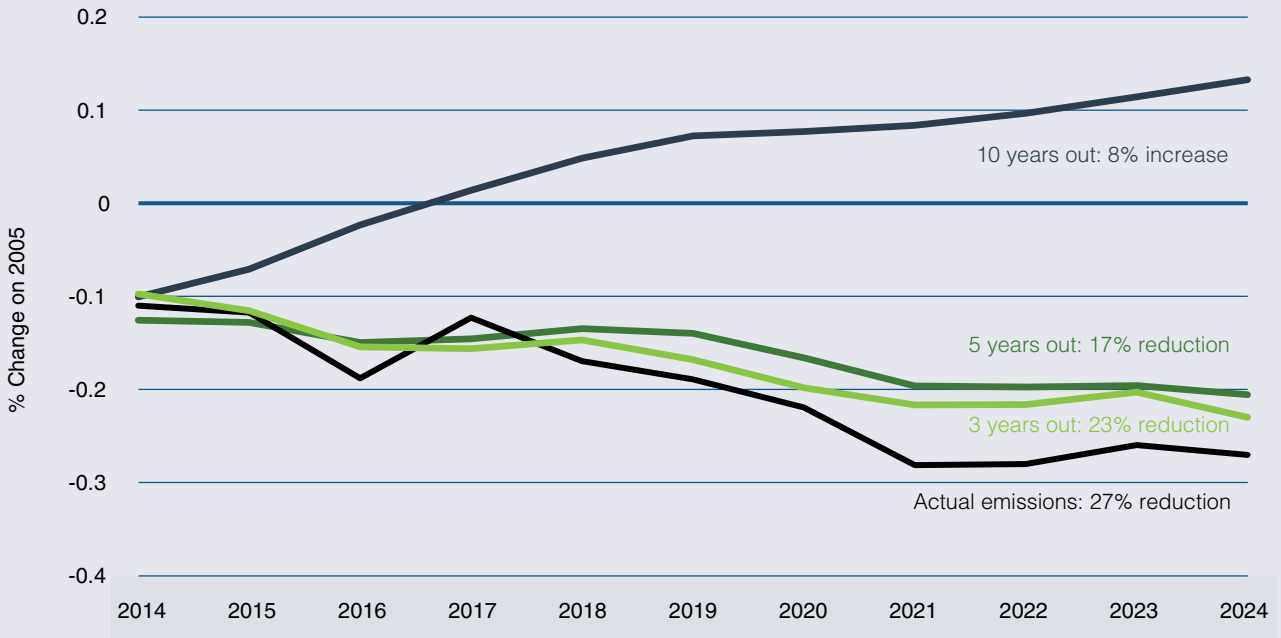
Emissions projections use the best available data on production and activity levels, commodity prices and macroeconomic trends to help determine how Australia is progressing towards its targets.

Emissions estimates are influenced by domestic policy settings, technology advancements, global markets and the continuous improvement of emissions data and methods. They are also impacted by events such as bushfires, drought, La Nina and El Nino weather events, and the COVID-19 pandemic.

For these and other reasons, projections are inherently uncertain. They involve judgements about the future growth path of domestic and overseas economies, policies and measures, technology and human behaviour. This uncertainty increases the further into the future emissions are projected. Historically, Australia's actual emissions have been substantially lower than projected.

As new policies have been introduced, clean technology costs have fallen, public and consumer sentiment has shifted, and global action on climate change has strengthened, Australia has significantly out-performed projections made in previous years (Figure 3.4).

Figure 3.4: Differences between emissions projections 10, 5, and 3 years in advance, compared to actuals for 2014-2024



Since 2022, the Australian Government's policy reforms have established legally binding policies calibrated to our national targets for well over half of Australia's emissions (Figure 3.5).

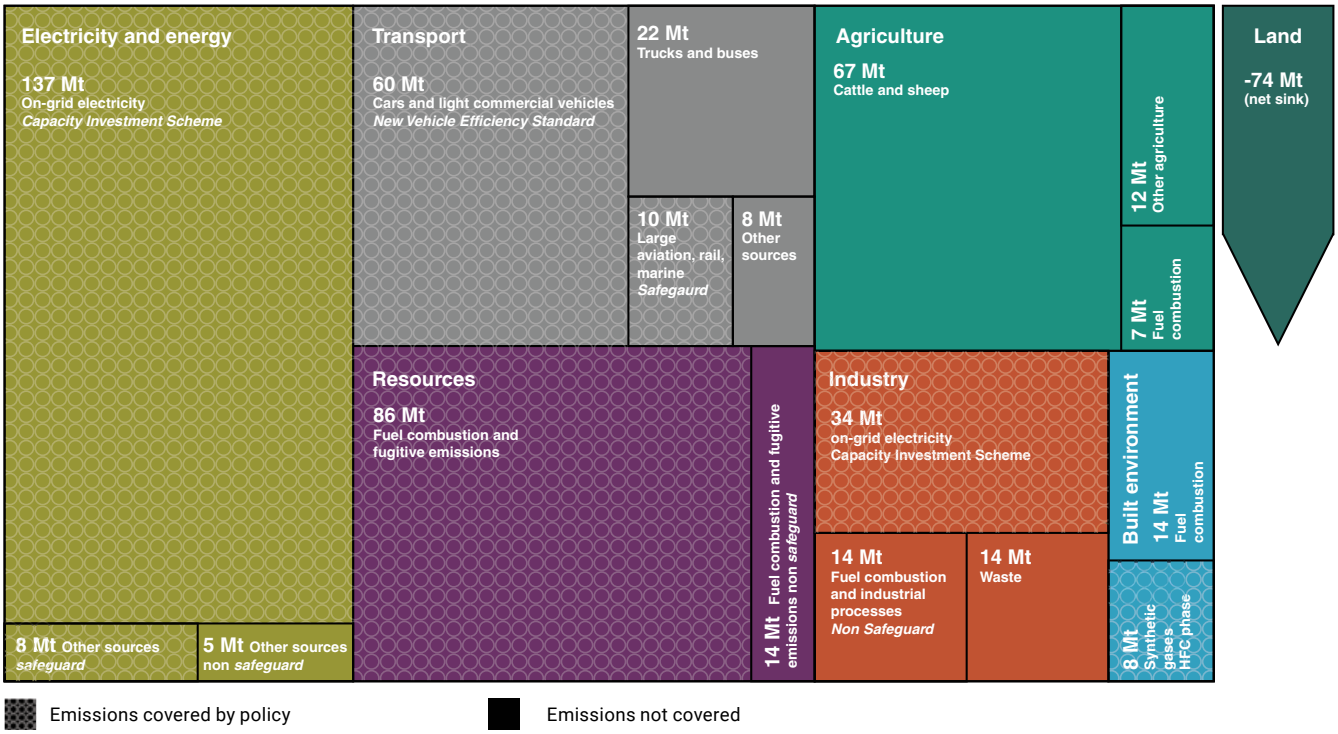
The Capacity Investment Scheme supports the expansion and decarbonisation of Australia's electricity grids with firmed renewables, to help achieve Australia's target of 82% renewable generation on-grid by 2030. It provides long-term revenue underwriting for projects, which decreases financial risk for investors. The CIS will support a total of 40 GW of projects with up to 26 GW of renewable generation capacity, and up to 14 GW of clean dispatchable capacity.[31] Achieving 82% renewable electricity generation is estimated to deliver 44 Mt* of cumulative abatement from 2024 to 2030.

The NVES improves access to low- and zero-emissions vehicles for Australian motorists by setting emissions targets for new passenger cars and light commercial vehicles – like utes and vans – sold in Australia. Car manufacturers and suppliers must meet these targets for all new vehicles, on average, that they bring into Australia. Over time, the emissions target is lowered. The NVES is expected to reduce the emissions intensity of new passenger vehicles by around 60% by 2030, and the emissions intensity of new light commercial vehicles by half over the same period. The Standard is expected to achieve 20 Mt* of cumulative abatement by 2030.

The ACCU Scheme incentivises carbon abatement activities through projects ranging from reforestation to energy efficiency. Proponents carry out registered projects to reduce emissions or sequester carbon and are issued with one ACCU for each tonne of carbon dioxide equivalent sequestered or avoided. ACCU crediting is subject to strict eligibility criteria based on the Offset Integrity Standards to ensure abatement is additional, measurable and evidence-based (see Chapter 9 for full description). Since 2011, the ACCU Scheme has delivered over 169 Mt of abatement across Australia.[32]

Figure 3.5 illustrates the broad coverage of the **Capacity Investment Scheme (CIS)**, the **Safeguard Mechanism** (Box 3.2) and the **New Vehicle Efficiency Standard (NVES)**.

Figure 3.5: Emission sources in 2024 covered by legally binding policy measures (Note: units refer to Mt CO_2-e).



* *Estimate is based on internal analysis*

Rio Tinto Yarwun Alumina Refinery, Gladstone, Queensland, Australia. Credit: Rio Tinto.

Box 3.2 The Safeguard Mechanism and its role in national emissions reductions

The Safeguard Mechanism legislates an emissions reduction trajectory to net zero in 2050 for over 200 of Australia's largest industrial facilities. Safeguard baselines decline annually in line with Australia's emission reduction targets of 43% below 2005 levels by 2030 and net zero by 2050. This will deliver around 200 $MtCO_2$-e of cumulative emissions reductions by 2030, with covered facilities collectively reducing their net emissions from 136 $MtCO_2$-e in 2024 to less than 100 $MtCO_2$-e in 2030, and continuing on a trajectory to net zero by 2050.[33]

The Safeguard Mechanism covers emissions across 4 of the 6 sectors:[34]

- Resources – 87% of sector emissions or 87 $MtCO_2$-e
- Industry– 56% of sector emissions or 35 $MtCO_2$-e
- Transport – 11% of sector emissions or 11 $MtCO_2$-e
- Electricity and energy – 3% of sector emissions or 4 $MtCO_2$-e

The Safeguard Mechanism is market-based and technology-neutral. It specifies the emissions outcome to be achieved, while leaving businesses to decide where their best opportunities for efficiency and transformation lie. This allows the cheapest emissions reductions to be accessed first, lowering the cost of compliance for facilities, and lowering the overall cost of reducing Australia's emissions.

- If a facility emits less greenhouse gas than allowed by their baseline it generates tradable credits (Safeguard Mechanism Credits or 'SMCs') for the difference between its emissions and baseline.
- If a facility emits more greenhouse gas than allowed by their baseline it must take action to reduce them, or purchase credits from others. Facilities can surrender SMCs or ACCUs to complement on-site reductions.

The Safeguard Mechanism is flexible and scalable. Its settings can be calibrated to align with any target. The decline rate of 4.9% annually to 2030 has been set so that Safeguard facilities deliver a proportional share of Australia's 2030 target. The decline rate for the period to 2035 will be considered in the 2026-27 Review and ensure the scheme's design is appropriately calibrated and effectively delivering emissions reductions in line with Australia's targets (see further in Chapter 9 Carbon Markets).

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32 Clean Energy Regulator, ACCU project and contract register, Government of Australia, September 2025

33 Clean Energy Regulator, 2023–24 safeguard data insights, Government of Australia, April 2025

34 Department of Climate Change, Energy, the Environment and Water (DCCEEW), Quarterly Update of Australia's National Greenhouse Gas Inventory: December 2024, Government of Australia, May 2025; Clean Energy Regulator, 2023–24 baselines and emissions data, Government of Australia, August 2025

2

Australia's Net Zero Pathway

An orderly transition to net zero emissions will support economic growth, create jobs in new industries, and provide broad-based support for households, communities and industries.

Part 2 of the Net Zero Plan sets out Australia's pathway through its 2035 target of 62 - 70% to net zero by 2050. This is informed by analysis from the Treasury, the Climate Change Authority, and extensive engagement with stakeholders.

Chapter 4

Sets out Australia's 2035 target

Chapter 5

Shows the opportunities for abatement across sectors and how Australia can achieve its targets and transition to net zero

Chapter 6

Sets out 5 decarbonisation priorities for Australia to achieve net zero. It explains current policies within this framework and the Australian Government's future directions

Chapter 7

Sets out what the Australian Government is doing to reduce non-CO_2 emissions like methane

4. Australia's 2035 target

Key messages

- Australia's 2035 emissions reduction target is 62-70% below 2005 levels.
- The target represents Australia's highest possible ambition. It is a credible contribution to global action to keep 1.5˚C within reach, and positions Australia to seize the opportunities from the global transition to net zero.
- The target can be met while the economy continues to grow, with technologies and practices we have today.
- The target and emissions budget provide flexibility for Australia to navigate uncertainty, risk, and seize opportunities over the next 10 years.
- In setting this target, the Government has considered and adopted the recommendation of the Climate Change Authority.

Australia's interim emissions reduction targets are important waypoints on the path to net zero emissions by 2050. They help keep our economy on a steady, predictable pathway and provide confidence for investors to support Australia's clean industries. In 2022, the Government increased Australia's 2030 target to 43% below 2005 levels and legislated that commitment. In line with the Paris Agreement, Australia is now determining its ambition for 2035.

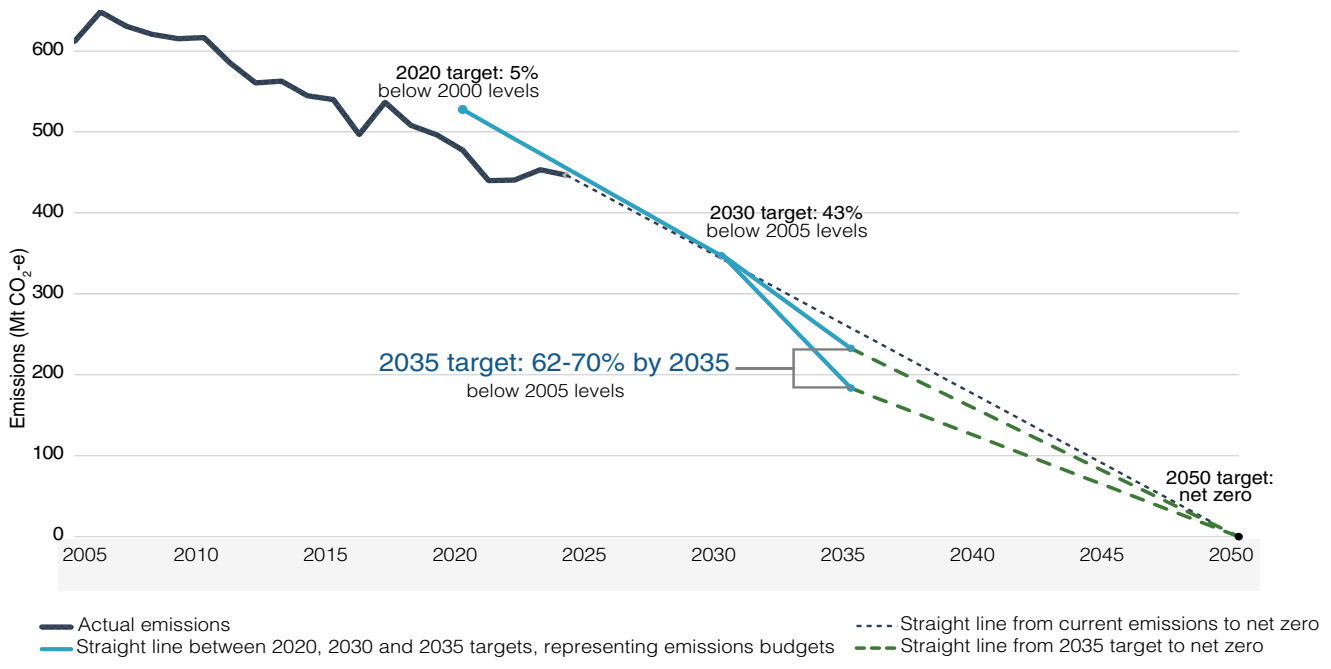
Australia's 2035 target is 62-70% below 2005 emissions levels, covering all sectors of the economy and all greenhouse gases (GHGs) (Figure 4.1).

This is an ambitious and achievable target for Australia. It demonstrates Australia's commitment to transform our economy by attracting investment in new, clean industries that help deliver on Future Made in Australia priorities. It is also a responsible contribution to global efforts to address climate change.

The Climate Change Authority advised:

> 'Adopting a 2035 target that is, and is seen to be, ambitious is crucial for unlocking national economic benefits, for creating good jobs in regions that have underpinned Australia's economy for generations, and for delivering new opportunities for Australian farmers and First Nations communities.'
>
> 2035 Targets Advice, page 9

Figure 4.1: Australia's emissions reduction targets and progress[1]



4.1 Independent advice informed Australia's target

The *Climate Change Act 2022* enshrines a world-leading process for developing emissions reduction targets, requiring the government to consider the independent advice of the Climate Change Authority (CCA) before setting a new target.

On 21 July 2023, the Minister for Climate Change and Energy wrote to the Climate Change Authority to request this advice for Australia's 2035 target.

The CCA's advice is the culmination of two years' work, informed by modelling from CSIRO, extensive scientific and policy analysis, and public consultation. The CCA's 2035 Targets Advice was also informed by its Sector Pathways Review[2]. This advice was provided on 12 September 2025 and recommended a target of 62-70%.

The Climate Change Authority advised:

> 'The Authority finds that an emissions reduction target of 62–70% from 2005 levels represents Australia's highest possible ambition taking account of the matters set out under the relevant legislation, is achievable, and is in Australia's national and economic interest.'
>
> 2035 Targets Advice, page 1

The Government has adopted the CCA's target recommendation.

The Government considered the CCA's advice alongside other important inputs, such as consultation on the Net Zero Plan and sector plans, and Treasury's modelling and analysis. These inputs informed the government's understanding of:

- The economic benefits, costs, and opportunities for Australia and how these may be shared across households, industries and regions
- Achieving the global temperature goals of the Paris Agreement
- Australia's position and role in the international community and in global markets
- The policies and technologies required to achieve the target.

4.2 62-70% is ambitious

The Climate Change Authority advised:

> 'Our comprehensive analysis has led us to conclude that 62-70% is an ambitious target for Australia to achieve by 2035. … It aligns with what the science demands: strong and urgent action.'
>
> 2035 Target Advice, page 3

A target of 62-70% by 2035 represents a substantial step-up in ambition for Australia, halving current emission levels and accelerating progress toward net zero by 2050. Over the next 10 years, Australia aims to reduce emissions by more than it has over the past 20 years. The average rate of emissions reductions will need to accelerate from 16 $MtCO_2$-e per year from now to 2030, to at least 23 $MtCO_2$-e per year from 2031 to 2035.

The global response to climate change is driving an irreversible transformation of energy systems and the global economy; one of the largest structural changes since the Industrial Revolution. Our world-class access to renewable energy, critical mineral resources, skilled workforces, geographic position, and our reputation as a reliable trading partner positions us well to benefit and prosper from the global transition as a major renewable energy and green commodity exporter. As the CCA notes "an ambitious target should position Australia for prosperity, realising opportunities to navigate the transition from an emissions-intensive economy to a prosperous future as a major exporter of low-emissions products" (2035 Targets Advice, page 9).

The Australian Government has set the target with this international context in mind, recognising that despite geopolitical challenges and volatility, the economic fundamentals remain and will continue to accelerate the transition to net zero. Australia's target enhances our competitiveness as global investors are looking for stable markets for renewable technologies and clean energy industries.

The Climate Change Authority advised:

> 'This continued momentum of global action reinforces the imperative for Australia to sustain strong action on climate change.'
>
> 2035 Targets Advice, page 76

This target is an important, but not our only, contribution to global mitigation efforts to meet the Paris Agreement goals. Our investment in developing clean energy technologies and industries will support other nations in their decarbonisation pathways.

A target of 62-70%, along with our international contributions, will help achieve the overarching goal of the Paris Agreement to keep global average warming well below 2°C and pursue efforts to limit warming to 1.5°C. The CCA found that "a target of 62-70% … anchors Australia's commitment to the global goal of pursuing efforts to limit warming to 1.5°C, the threshold beyond which multiple climate systems risk irreversible breakdown." The science shows us that every fraction of a degree matters, including for Australia, where the National Climate Risk Assessment shows the significantly increased impacts for higher global warming levels.

The UN's Global Stocktake of progress under the Paris Agreement recognises that global emissions must reduce by 60% from 2019 levels to keep 1.5°C within reach, as found by the IPCC Sixth Assessment Report[4]. While this does not determine what national contributions should be, it provides a useful point of comparison. This is well within Australia's target range of 62-70% - for Australia a 60% reduction on 2019 levels is equal to a 68% reduction on 2005 levels.

The Climate Change Authority advised:

> 'Continuing to strive for 1.5 °C matters because the difference in risks and impacts between a 1.5 °C and 2 °C outcome is stark.'
>
> 2035 Targets Advice, page 15

4.3 62-70% is achievable

The purpose of the 2035 target is to drive stronger action over time. This is what is required nationally and globally if we are to achieve the Paris temperature goals and avoid the worst impacts of climate change.

As the economic case for the net zero transition strengthens, targets play a crucial role in signalling our national economic intentions, highlighting opportunities and building investor confidence. The CCA advise that an ambitious target increases the likelihood of Australia capturing the benefits of the global transition and the potential size of these benefits.

The CSIRO's modelling, which informed the CCA advice, shows that a 62-70% target can be achieved while the economy grows at an average rate of 2.7% each year. All major sectors increase the volumes and value of their output[5].

The Climate Change Authority advised:

> 'The projected reductions in net emissions are all achieved against a projected background of economic growth and rising national income. Much of the so-called 'cost' of achieving a target is actually investment to replace ageing assets like old coal plants, vehicles, appliances and industrial gear with cheaper-to-run technology – it's investment that has to happen regardless of the emissions reduction imperative.'
>
> 2035 Targets Advice, page 8

These findings are reinforced by modelling undertaken by Treasury which shows that an orderly transition to net zero would support continued economic growth, higher living standards and employment. A disorderly transition will cost investment, jobs and the economy. This is further discussed in Chapter 5.

The CCA concluded that a target of 62-70% below 2005 levels can be achieved with existing technologies and practices – achievement does not rely on new, unproven technology.[6] This includes continuing to expand renewable energy generation, electrifying and improving the efficiency of transport and buildings, improving the efficiency and emissions intensity of industry, mining and agriculture and increasing land-sector carbon removals.

Similarly, findings from the Treasury modelling show there are cost-effective pathways that deploy current technologies to achieve the required emissions reductions.

Past experience shows that clean energy technologies and capabilities often improve faster than projected, giving us confidence that even the upper end of the target range could be achieved if technology and market innovation continues to surpass today's expectations. Technology pathways are described in more detail in Chapter 5.

The Climate Change Authority advised:

> 'Right now, the priorities are to rapidly deploy and scale known technologies, and to set the foundations and mobilise capital for the technologies needed after 2035.'

2035 Targets Advice, page 7

CCA and Treasury analysis shows Australia has extensive abatement opportunities, and our track record shows we have the means – and the commitment – to act.

The policies and reforms introduced by the Government since 2022 provide strong foundations and are making progress towards the target. Australia's emissions are now 29% below 2005, and with today's policy settings and market and global trends, we are projected to be 51% below 2005 by 2035. Compared to now, that is two thirds of the way to 62%, and more than half of the way to 70%. Further policy effort will build on these foundations, including through scheduled reviews to recalibrate existing measures.

The Climate Change Authority advised:

> 'The foundational climate change policies for achieving this target are also now in place. These must be refined, extended and expanded to ensure the target is reached in a timely, efficient, and effective manner.'

2035 Targets Advice, page 32

Australia's emissions outlook has consistently improved faster than projected due to the combination of policy, global, technological, market and other developments, (Box 3.1). Global projections have similarly improved – in part because modelling of the energy transition consistently tends to overestimate costs and underestimate deployment rates for clean technologies.[7]

The Australian Government is not alone in addressing climate change. As the CCA notes, the target "represents the total collective effort required across the economy; it is not the target for any individual sector, business, jurisdiction or household." (2035 Targets Advice, page 32). The Australian Government plays a leadership role in providing the right policies, regulatory settings, supports and standards. It also works with state, territory and local governments, as well as industry and communities, as everyone invests in the transition and the social and environmental benefits it brings (discussed further in Part 4).

The Climate Change Authority advised:

> 'Everyone has a role to play in reducing emissions, and the sum of those roles is greater than the parts. When governments, major corporations, investors, small businesses, community groups and households each commit to action, their efforts reinforce one another. Strong targets or action enables and encourages others to do the same, building momentum across the economy.'

2035 Targets Advice, page 33

4.4 Setting an achievable target, robust to uncertainty

Achievement of any emissions reduction level within the target range would be a strong contribution to global climate action; as the CCA states, "the future is always going to be uncertain but that is no cause to pause – the stakes are too high and stalling creates other risks and costs." (2035 Targets Advice, page 10).

Setting the target as a range allows Australia to manage risks and uncertainty while pursuing an ambitious target. The global landscape is volatile. Shifts in global markets will affect demand for our energy commodity exports. Technology costs are often lower than predicted. Climatic and weather patterns affect emissions from our land sector, such as elevated sequestration during La Nina periods and elevated emissions during droughts. For example, over the past 20 years, Australia's land sector emissions have seen year-to-year variations of around 10 $MtCO_2$-e, and in a few instances shifts of up to 30 $MtCO_2$-e. These could lead to point-in-time variations in our emissions of a few percent of national emissions.

The Climate Change Authority advised:

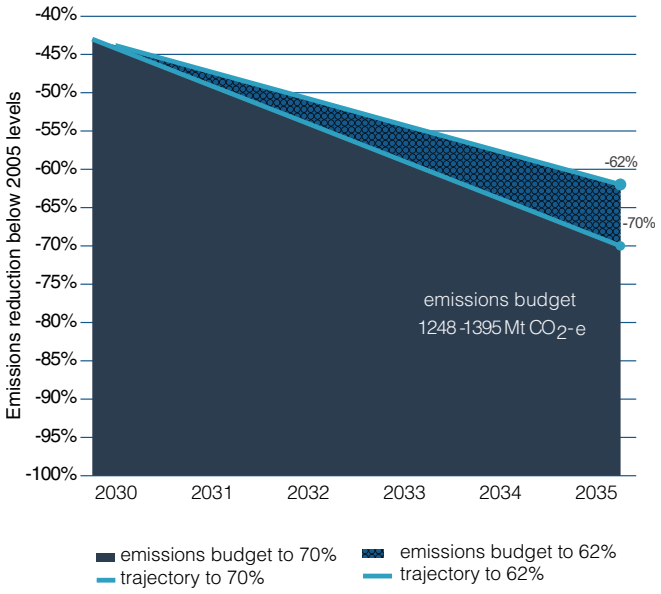
> 'The Authority considers there are good reasons for the Australian Government to adopt a target range, rather than a single point target…. A target range signals intent, while recognising a variety of uncertainties and delivery risks.'
>
> 2035 Targets Advice, page 10

A target range factors in these risks and provides a more stable policy basis for planning against variable weather patterns and global market fluctuations. Target ranges are commonly used internationally by other countries to manage similar risks and factors.

Australia's target will be implemented as a multi-year budget – that is, a limit on total net emissions from 2031 to 2035. The emissions budget corresponding to the target is estimated to be 1248-1395 $MtCO_2$-e. This is Australia's official Nationally Determined Contribution (NDC) under the Paris Agreement.

This budget approach helps to moderate the impacts of year-to-year variability. It also aligns with the science of climate change, as the extent of warming and other impacts depends on cumulative greenhouse gas emissions over time, not on emissions in a single year.

Figure 4.2: 2035 target straight line trajectory and corresponding emissions budget



5. Australia's pathway to net zero

Key messages

- Australia's pathway to net zero emissions involves rapid deployment of renewable energy, accelerating electrification and energy performance, switching to low-carbon fuels and other solutions, and carbon removals to address residual emissions.
- An orderly transition to net zero will support continued economic growth, higher living standards, jobs and investment. Using our natural advantages to scale clean energy industries and exports means these benefits can be greater, and our exports larger.
- Delay will cost investment, jobs and the economy

This Chapter presents a consolidated picture of Australia's transition to net zero at a whole-of-economy and sectoral level. It uses the best available information to chart an orderly and efficient pathway to meet Australia's targets. It outlines the potential pattern and timing of abatement in Australia over three phases – to 2030, 2035 and 2050.

5.1 A pathway informed by robust analysis

Independent analyses have consistently found that an orderly net zero pathway will maximise benefits for Australia[8]. Common features of an orderly and efficient transition include rapid deployment of mature renewable technologies to reduce electricity emissions; energy efficiency improvements and electrification; investment in alternative fuels and new technologies to reduce costs and scale their adoption; and maintaining and expanding carbon removals, including land-based abatement, to balance residual emissions. While all sectors contribute to reducing emissions to 2050, the role of each sector changes over time, driven by the availability and relative cost-effectiveness of abatement options.

The CCA's Sector Pathways Review confirms these features and highlights that:[9]

- Working to reduce emissions now using mature technologies, while developing and commercialising emerging technologies, is the most efficient pathway. Delay increases risk, cost and sees Australia miss opportunities.
- There is a need for a clear, stable policy environment underpinned by strong engagement and collaboration between policymakers, businesses, communities and households.
- More opportunities to decarbonise will emerge over time. Technologies that are still experimental could be 'game changers' in coming decades, reducing the cost and increasing the pace of decarbonisation.

5.2 Modelling provides insights on abatement opportunities

The Treasury undertook modelling and analysis to provide insights into the potential economic opportunities from different pathways to net zero.*

Using scenario-based analysis, Treasury has drawn on the best available evidence to provide insights into how Australia can efficiently achieve emissions reductions over time.

- Treasury modelled two scenarios that broadly reflect this Plan – a 'Baseline Scenario' and a 'Renewable Exports Upside Scenario'. These see Australia reach 43% emissions reductions by 2030, 65% reductions by 2035 (which is consistent with the target range), and net zero by 2050. They assume orderly and efficient emissions reduction pathways reflecting the expected availability of technology, in the context of global climate action to keep warming well below 2^{0}C.
- Treasury also modelled a 'Disorderly Transition Scenario', in which Australia delays climate action, does not set a credible 2035 target and does not undertake further climate policy action until 2040, before rapidly reducing emissions to achieve net zero by 2050.

**Note: Treasury's modelling differs from the analysis in Australia's annual emissions projections (discussed in Chapter 3). The projections are prepared in accordance with international reporting requirements. They focus on the national emissions outlook to 2040, under current policy settings, and in the context of current global action (which falls short of the global temperature goals).*

Treasury's modelling provides insights into how Australia can efficiently achieve emissions reduction over time and the impact of different pathways to net zero on investment, economic growth, living standards, jobs and the structure of the economy. The actual mix of activity will be determined by the combination of abatement technology, market, policy and other drivers over the period to 2050.

Kardinia Energy's Printed Solar technology uses carbon-based semi-conducting polymers printed on recyclable PET plastics.

Box 5.1 CSIRO modelling of sectoral pathways and 2035 targets for CCA

The CCA commissioned the CSIRO to undertake modelling as one input to inform its advice on the 2035 target and Sector Pathways Review[10]. The CSIRO modelled six net zero scenarios for Australia, in the context of two levels of global climate ambition (aligned with limiting warming to below 2°C and 1.5°C). The domestic emission pathways reach net zero between 2035 to 2050.

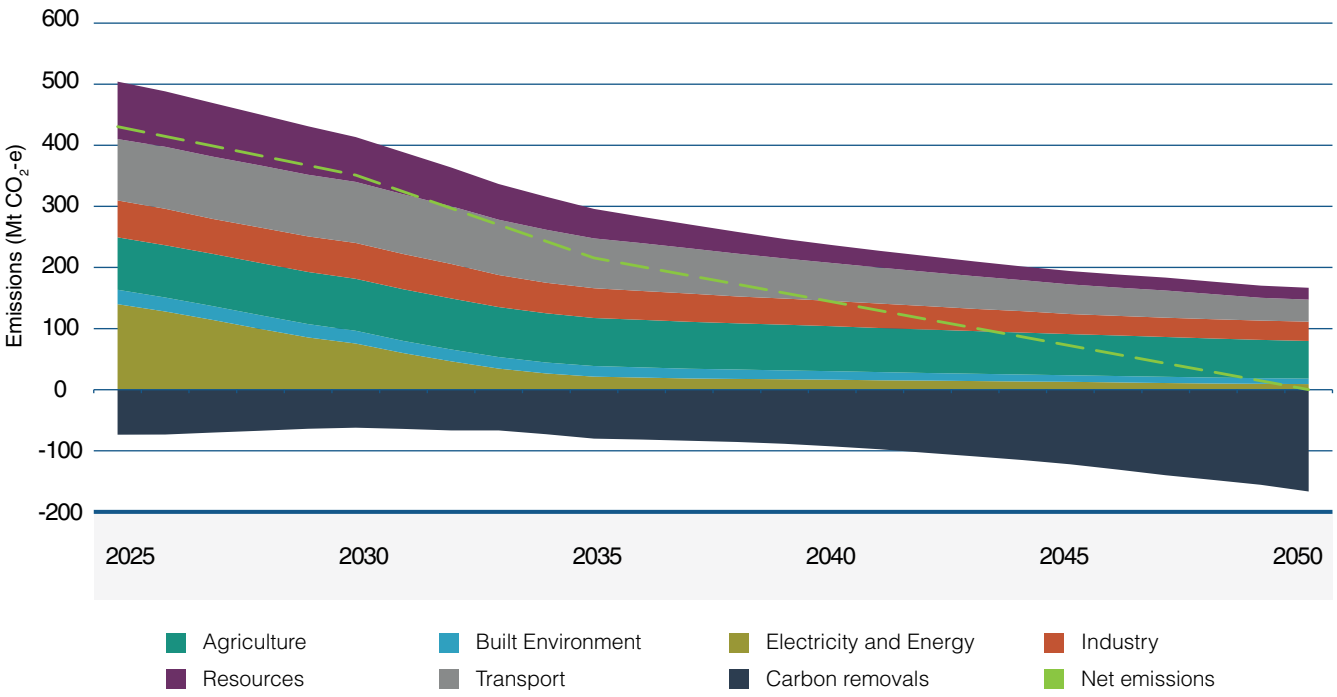
CSIRO's analysis explores different questions and uses different assumptions to Treasury, however, findings on the key abatement opportunities and sequencing of these to net zero emissions are largely aligned.

Differences in the assumptions and results reflect that the future is uncertain, and remind us that the ultimate mix of abatement will only be known as the transition unfolds. This underscores the importance of flexible policies focused on emissions outcomes, and support for a diverse mix of technologies and other solutions.

5.3 Australia's pathway to 2050

Treasury's Baseline Scenario illustrates an efficient pathway consistent with existing policies, the expected availability of abatement technology, and a global economy that achieves emissions reductions consistent with keeping global average temperature increases to well below 2°C. The key opportunities for Australia – to 2030, 2035 and net zero in 2050 – are outlined on the following pages.

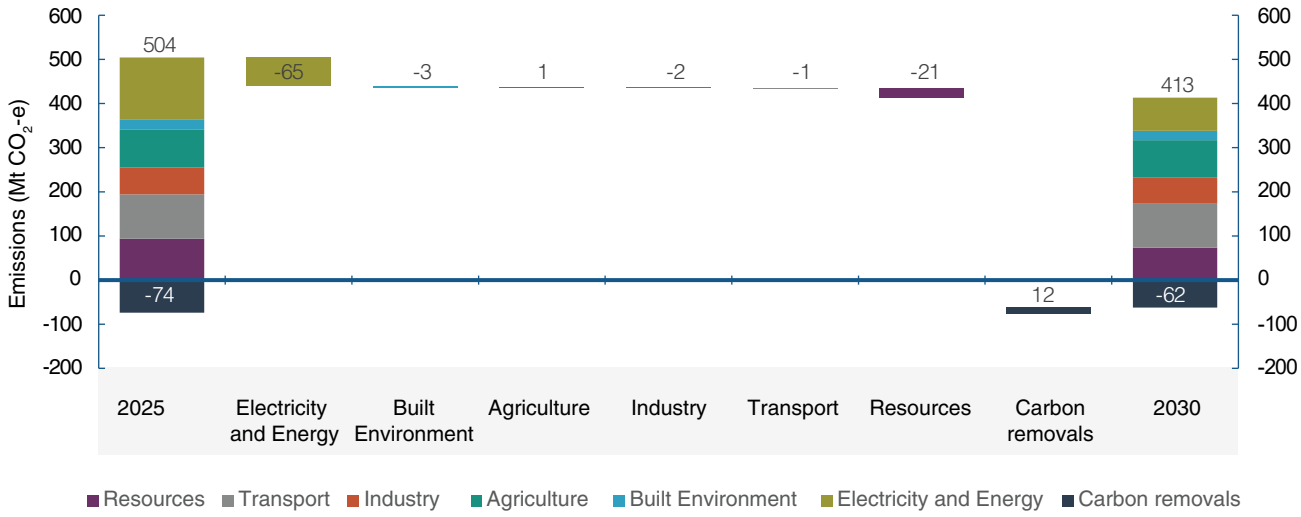
Figure 5.1: Projected emissions under Treasury Baseline Scenario, by sector



5.3.1 From now to 2030

Australia is well-positioned to meet its 2030 target with existing policies and measures.

Figure 5.2: Indicative abatement and composition by sector, Treasury Baseline Scenario, 2025 to 2030



To 2030, most abatement comes from accelerated deployment of firmed renewable **electricity** displacing fossil fuel generation in the electricity and energy sector. Treasury's modelling indicates firmed renewable capacity meets growing electricity demand from transport, the built environment and some manufacturing processes. CSIRO's modelling similarly shows electricity decarbonisation is the largest source of near-term abatement through increased deployment of renewable sources. Energy efficiency improvements support achievement of the 82% renewable target and the associated emission reductions. (Box 5.2)

The **resources** sector has the second largest contribution to emissions reductions by 2030 in this scenario. This reflects investment in cost-effective electrification, on-site renewable electricity generation, and a gradual decline in domestic and global demand for fossil fuels (particularly thermal coal). Liquified Natural Gas and gas facilities implement carbon capture and storage technology where it is cost effective (Box 5.2).

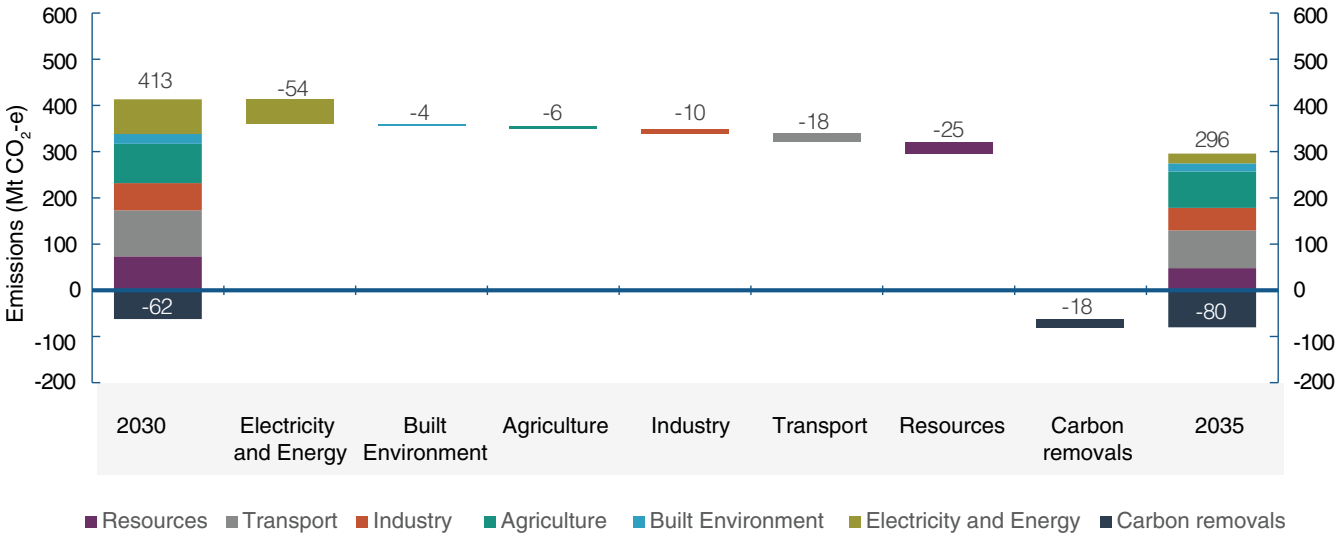
Electrification arrests emissions growth in the **transport** sector – which peaks then starts to trend down – and continues emissions reductions within the **built environment** and **industry** sectors.

The **land** sector sink moderates slightly after the elevated levels of sequestration during the extended La Nina weather event from 2020 to 2023.

In the next five years, it will be important to continue building the foundations to enable future emissions reductions across other sectors (see Chapter 7). This includes infrastructure and enabling systems like certification for low carbon liquid fuels and hydrogen, and investing in innovation in agriculture.

5.3.2 From 2030 to 2035

Figure 5.3: Indicative abatement and composition by sector, Treasury Baseline Scenario, 2030 to 2035



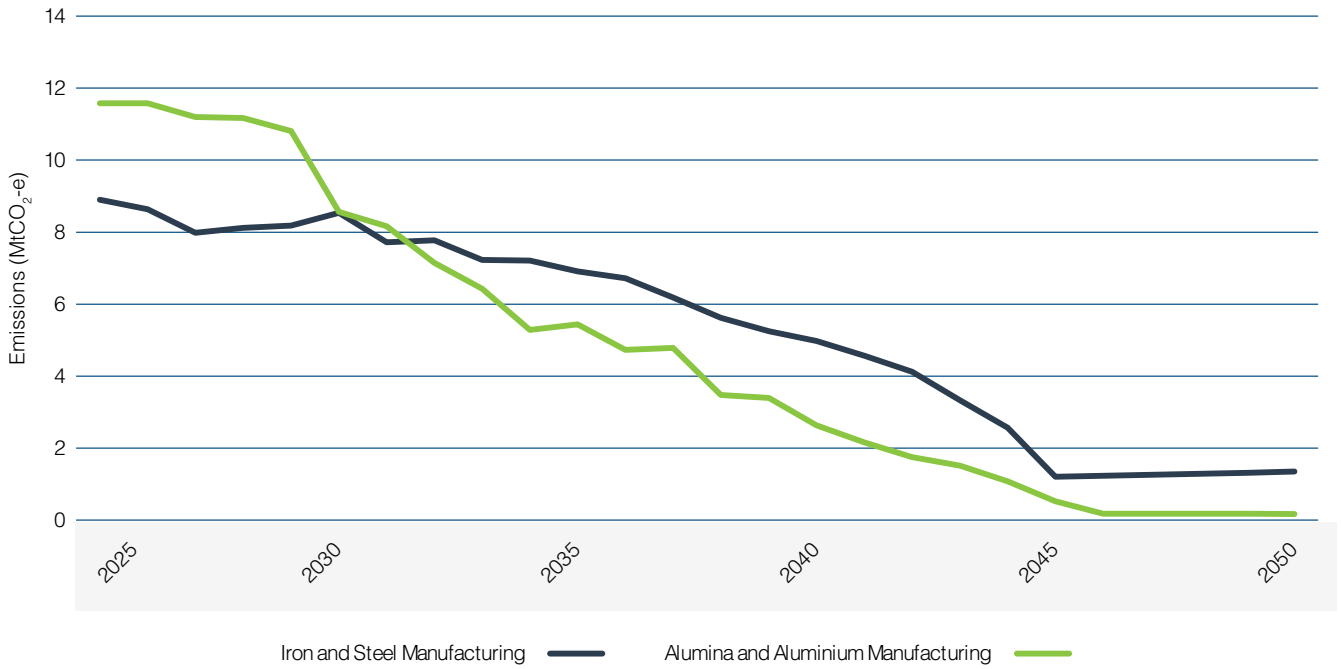
From 2030 to 2035 there is further decarbonisation of the energy system, growing contributions from other sectors as electrification accelerates, and clean fuels begin to be deployed where electrification is not viable.

In the **electricity and energy sector**, electricity is mostly decarbonised, with most coal exiting the electricity system and electricity generation emissions falling by over 90% below 2005 levels. Sustained rollout of firmed renewable electricity generation and transmission, alongside installation of well-integrated consumer energy resources (small-scale solar and batteries that are integrated to allow consumers to manage their on-grid demand) replaces coal capacity. Liquid fossil fuel use declines as other sectors take up electrification opportunities (Box 5.2).

Energy efficiency continues to support the energy transition, with improvements in buildings, appliances and equipment helping balance increased electricity demand from accelerated electrification of vehicles and industry.

Under this scenario, emission reductions accelerate across both the **resources** sector, where emissions reduce by over a third, and the **industry** sector where emissions reduce by over 15%. Declining global fossil fuel demand contributes to lower fossil fuel mining activity and related emissions. Technologies to reduce fugitive emissions - such as from ventilation air methane within coal mining - begin to be scaled up, and LNG facilities electrify. Mining and other industrial facilities continue to take up feasible and cost-effective electrification for applications like transport and low temperature heat processes, in addition to on-site renewable electricity generation. Industrial facilities such as iron, steel, and alumina manufacturing begin to reduce emissions through fuel switching to less emissions-intensive fuels. Emissions from these manufacturing sectors reduce by around 30% between 2030 and 2035, from 17 $MtCO_2$-e in 2030 to 12 $MtCO^2$-e in 2035. (Figure 5.4)

Figure 5.4: Projected emissions reduction for industrial sectors, Treasury Baseline Scenario, 2025 to 2050



Broad-based electrification also drives emissions reduction across other sectors.

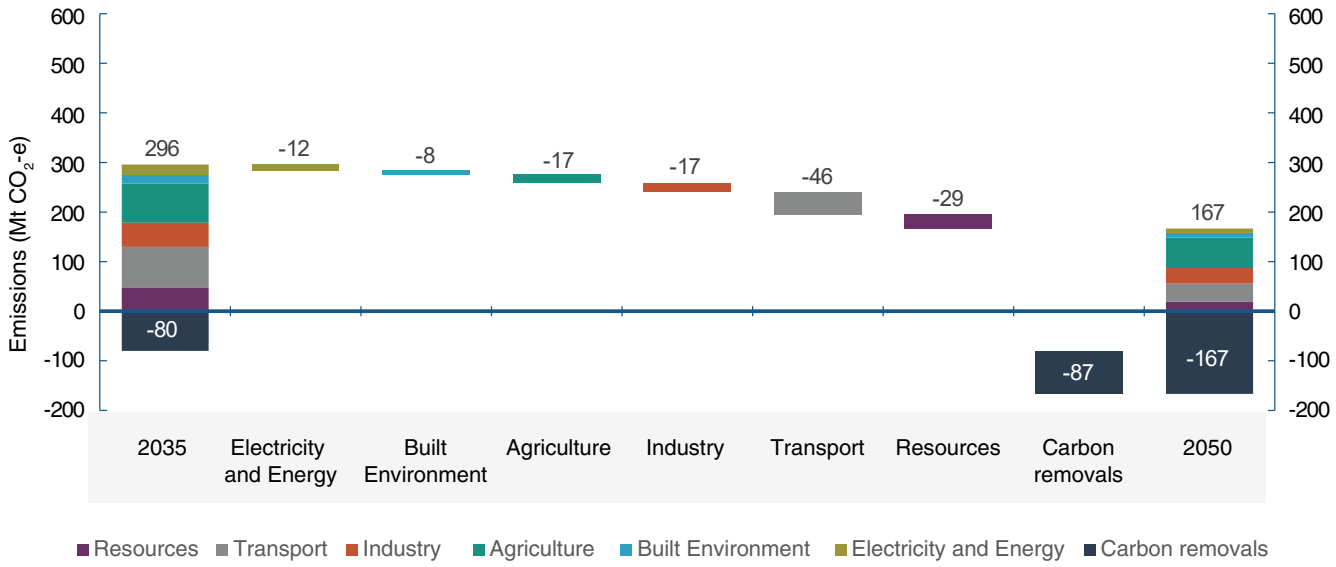
Emissions in the **built environment** sector fall as the shift from gas use to electricity gains momentum in residential buildings and commercial activity. Electrification also drives material reductions in the **transport** sector under this scenario, with emissions falling around 20% between 2030 and 2035. More drivers switch to electric vehicles, and less-efficient internal combustion engine (ICE) vehicles are retired and replaced with newer higher-efficiency models. Electrification of heavy vehicles is limited, but initial deployment of low carbon liquid fuels such as renewable diesel and sustainable aviation fuel begins in freight and aviation.

Some electrification and fuel switching, and initial uptake of nitrification inhibitors and methane-reducing feed additives, begin to reduce **agriculture** sector emissions.

Net removals in the **land** sector increase over the period, returning to the levels seen in the early 2020s. This is partially driven by increased demand for offsets from Safeguard facilities. Reforestation, regeneration and improved fire management of savanna ecosystems offer the most cost-effective opportunities.

5.3.3 To net zero in 2050

Figure 5.5: Indicative abatement and composition by sector, Treasury Baseline Scenario, 2035 to 2050



With the **electricity and energy sector** already largely decarbonised, abatement scales up in other sectors beyond 2035. Technology options, market trends and other factors are more uncertain over the longer term, however current analysis suggests significant further reductions in emissions from transport, resources and industry are possible, with land-based carbon removals scaling up over time to balance remaining emissions.

In Treasury's Baseline Scenario renewable generation reaches 97% in the National Electricity Market in 2050. consistent with AEMO's Integrated System Plan Step Change scenario, consequently, **electricity** emissions get to near zero. Off-grid renewable electricity generation expands to support renewable hydrogen production, to produce green metals and other commodity exports as well as some domestic decarbonisation.

The **transport sector** sees the largest absolute emissions reductions over this period, falling by more than half. Transition of the passenger vehicle fleet from ICE vehicles to EVs accounts for most of this change. Abatement scales up for heavy vehicles, maritime and aviation through a steady increase in uptake of LCLFs across the period.

Box 5.2 Australia's fuel and energy mix is expected to change over time

Electricity currently comprises approximately a quarter of Australia's total final energy consumption[+]. Fossil fuels such as petrol, diesel, natural gas and aviation fuel comprise over half of Australia's energy consumption and the emissions associated with their use contribute about a third of annual emissions.

DCCEEW analysis of Treasury's Baseline Scenario illustrates how the mix of energy supplied in Australia could change over time; and its impacts on associated emissions.

Figure 5.6: Australia's energy supply mix, 2025 to 2050, DCCEEW analysis of Treasury Baseline Scenario*

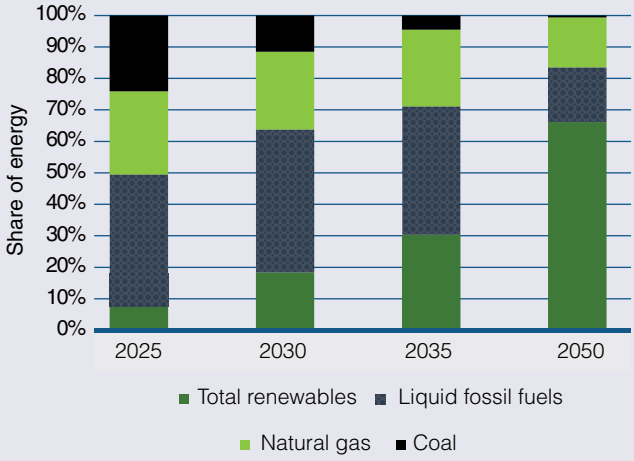
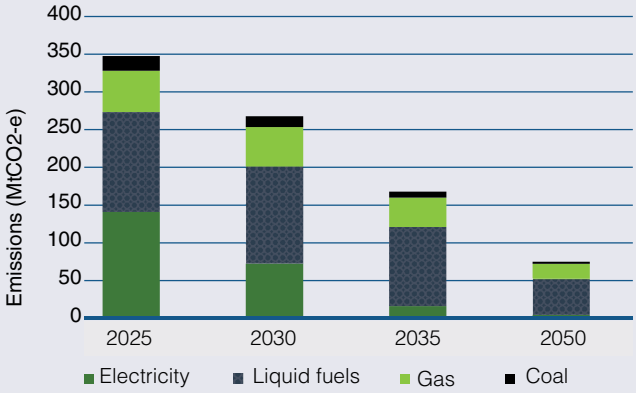


Figure 5.7: Australia's emissions by fuel type, 2025 to 2050, DCCEEW analysis of Treasury Baseline Scenario



+Note: Energy consumption is the total energy consumed by end-users. It excludes fossil fuels used in electricity generation and electricity used in hydrogen production. Gas used as a chemical feedstock and coal used in iron and steelmaking is included.

**Note: Total renewables refers to renewable electricity generation and low carbon liquid fuels*

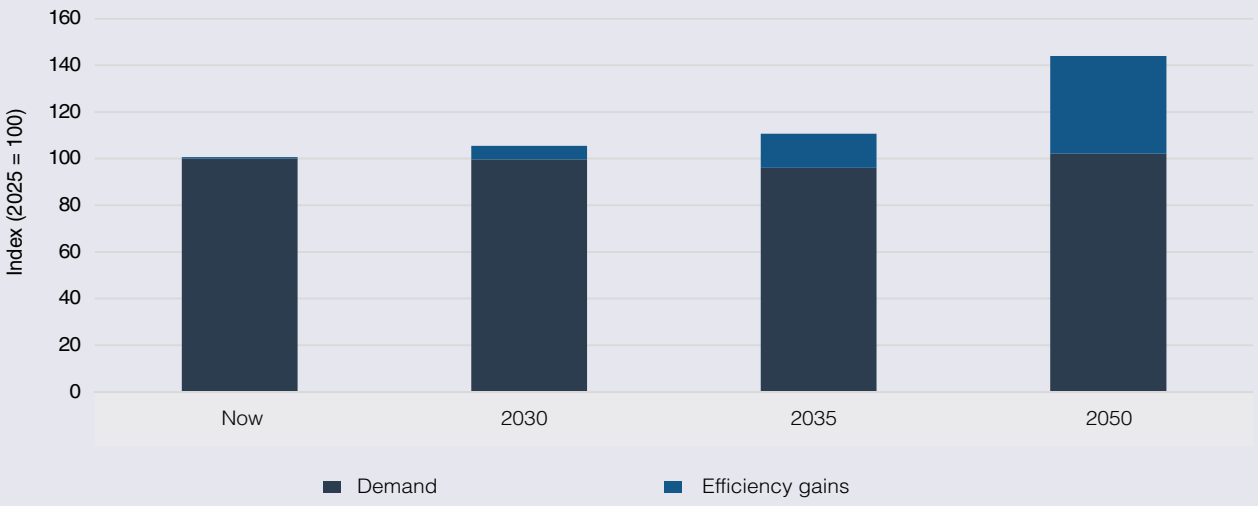
Liquid fossil fuel supply sees an overall reduction of about one-third by 2050. This is driven in the early stages by declining demand for petrol (used mostly in passenger vehicles) as vehicle efficiency improves and electric vehicle uptake accelerates. From 2035 onwards, scaled up production of renewable hydrogen and low carbon liquid fuels displaces diesel and aviation fuel. Liquid fossil fuels emissions reduce by over two-thirds from 2025 to 2050.

Gaseous fuels also see a transformation. Natural gas supply in 2050 reduces by about half compared to supply in 2025, and emissions fall by around 70% from 2025 to 2050 (Figure 5.10).

Electrification across sectors sees electricity make up an increasing share of energy consumption, with demand doubling; but emissions declines to near zero by 2050.

Energy demand growth at point of use is moderated by energy performance improvements over the transition. This allows Australia to get more out of our energy inputs and existing energy infrastructure. Under the Baseline Scenario, efficiency gains deliver energy savings at point of use of around 30% in 2050.

Figure 5.8 Estimated energy demand savings from energy efficiency, DCCEEW analysis of Treasury Baseline Scenario, 2024 to 2050*



**Note: Energy demand estimated by DCCEEW based on Treasury's Baseline Scenario. Efficiency gains estimated by DCCEEW.*

Decarbonisation of the **resources** and **industry** sectors continues at pace beyond 2035, with resource emissions falling by more than half and industry emissions by around a third by 2050. Global fossil fuel demand continues to fall, leading to lower fugitive and energy-related emissions from coal and gas production. Electrification at mining, and remaining LNG and gas facilities, supported by onsite renewable electricity generation, scales up. Alumina and aluminium, and iron and steel manufacturing facilities continue to reduce their emissions, including by transitioning from fossil fuels to use electricity or hydrogen in production processes (Figure 5.4).

Iron ore mining, Australia.

Box 5.3 Australia's industrial transition

Clean energy industries are increasingly shaping the global economy. Australia will secure substantial economic returns by positioning itself as an integral part of those industries and supply chains.

As Australia pursues the Future Made in Australia agenda and seeks to grow its manufacturing base, we are addressing existing pressures on our industries to ensure our long-term energy security, industrial competitiveness, and economic resilience.

The Australian Government is working in partnership with Australian industry as the world transitions to net zero. The Industry Sector Plan highlights action over the near term to improve energy efficiency, deploy existing technologies and transition to alternative fuels in as many businesses as possible. Ensuring there is sufficient supply of appropriately priced renewable energy is also a priority.

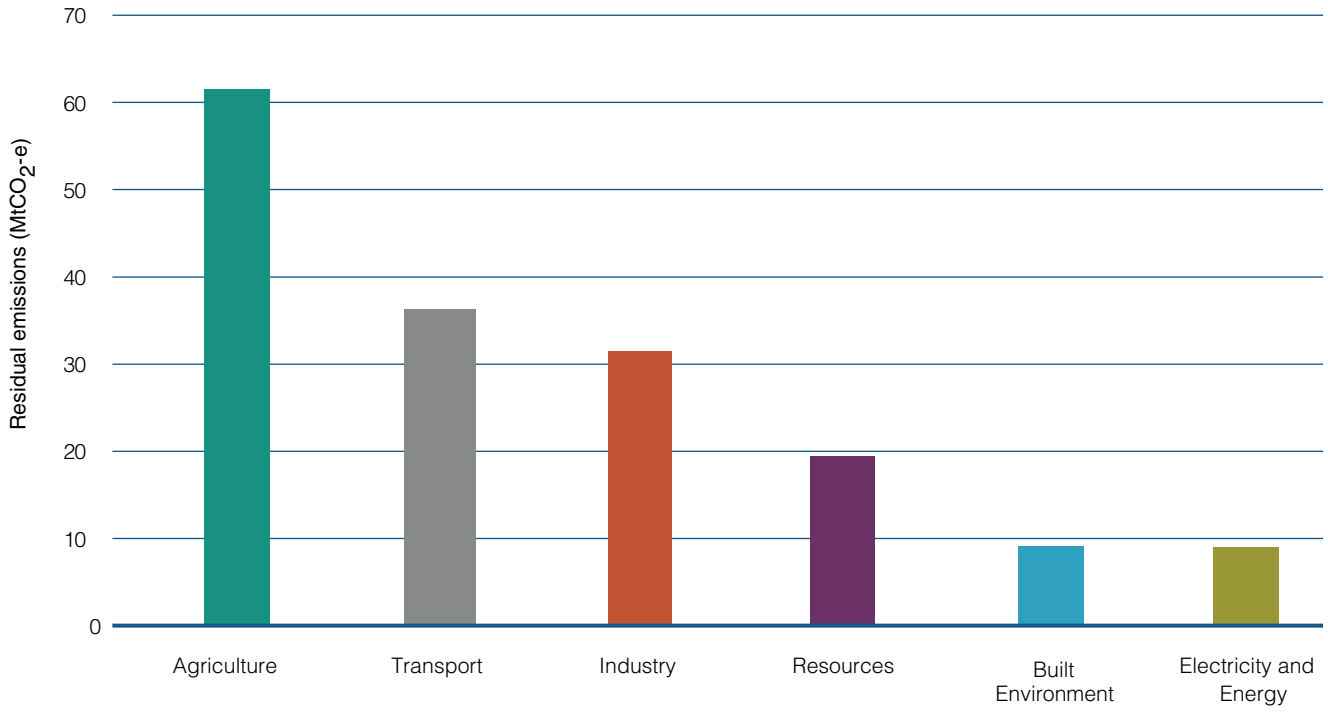
In the medium term, new technologies are expected to be commercialised alongside widespread adoption of existing technologies. This paves the way for significant decarbonisation across the harder to abate industrial sectors in the longer term, such as iron, steel, alumina and aluminium.

Annual emissions in the **agriculture sector** decline modestly, with emissions in 2050 around a quarter lower than in 2035. This reflects a gradual uptake of abatement technologies including feed additives that reduce methane emissions from livestock. Uptake of slow-release and nitrification-inhibiting fertilisers lead to fewer nitrous oxide emissions from crop production.

Emissions in the **built environment sector** continue to decrease, supported by the decarbonisation of the electricity grid. Continued household switching from gas to electricity, and the associated increase in energy efficiency, drives most of this reduction. The rate of fuel-switching away from gas, particularly at the individual household level, will be impacted by a range of factors, including social and behavioural preferences.

Land-based carbon removals roughly double over this period to balance residual emissions (Figure 5.9). Treasury analysis suggests removals are likely to be primarily driven by reforestation activities, as engineered carbon removal technologies are not assumed to be cost-competitive over this timeframe. Technological breakthroughs may change this outlook. For example, engineered carbon removal technologies like direct air capture (DAC) may become cheaper over time and innovations, such as livestock methane reduction solutions, could drive faster declines in residual emissions. CSIRO modelling suggests DAC could augment land-based sequestration from 2035 onwards. However, the path for such technologies remains highly uncertain given current costs and lack of projects at scale.

Figure 5:9 Projected residual emissions in 2050, Treasury Baseline Scenario



Using natural gas for its highest value uses supports efficient decarbonisation

Natural gas remains an important contributor to Australia's economy and energy security throughout the transition to net zero, but its role changes and overall use declines.

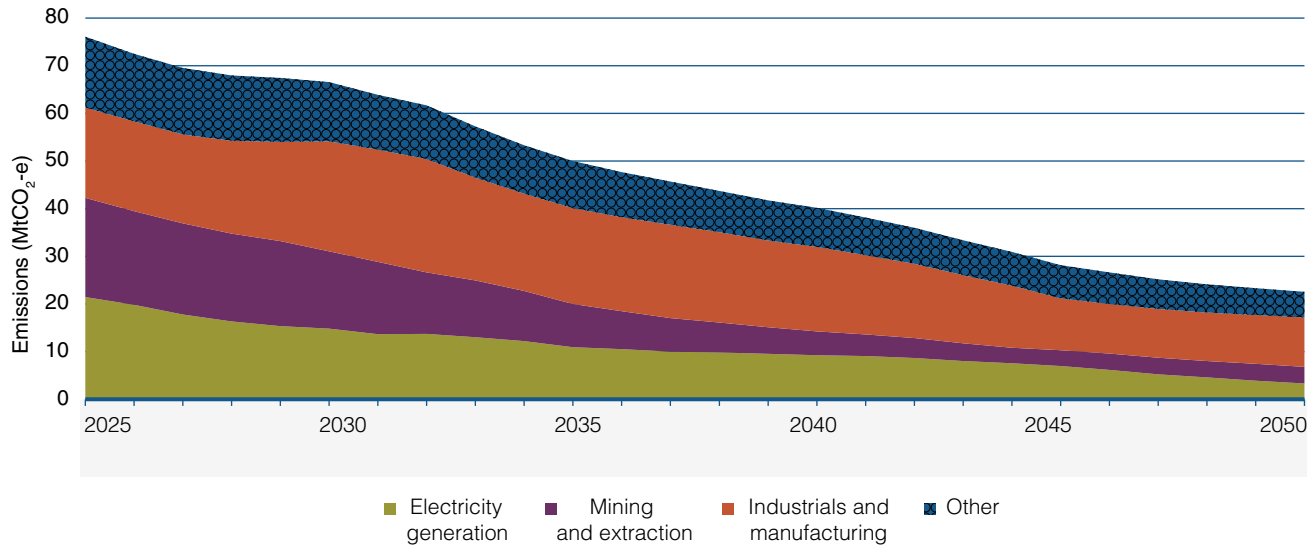
Natural gas users will transition at different times due to the relative cost of natural gas and electricity, the availability and affordability of alternative technologies and fuels, and the timing of asset turnover. Treasury's Baseline Scenario shows emissions from economy-wide natural gas use declining by 70% to 2050 (Figure 5.10) driven by:

- **Residential and commercial applications**: Steady declines in natural gas use out to 2050 as the cost advantages of electrification grow.
- **Electricity:** Natural gas plays an enduring and critical role to firm renewable generation, however, total gas-fired generation falls over time. Off-grid electricity generation, particularly in the mining sector, shifts from gas to renewables.
- **Industry:** Natural gas plays a variety of roles. Low temperature heat industrial applications are expected to electrify, whereas high heat applications may rely on gas for longer. Natural gas continues to be used as a feedstock for industrial products, such as fertilisers and chemicals, until technically and commercially viable alternatives are available. Out to 2035, natural gas consumption in industrial sub-sectors such as steel and alumina manufacturers could grow, as they switch from coal to gas to reduce their emissions-intensity. Beyond 2035, some industrial users begin to transition to renewable electricity and hydrogen.
- **Resources sector:** Emissions from natural gas use decline as electrification increases in mining, and as demand for fossil fuels declines.

Action to reduce natural gas demand will support decarbonisation over the long-term. However, the next few years is a critical period in which additional natural gas supply, transport capacity and storage will be needed to support domestic energy affordability, emissions reductions and industrial capability – and to ensure Australia continues to meet export commitments.

The Australian Government is currently undertaking a Gas Market Review to ensure sufficient affordable natural gas supply in the longer term. The Future Gas Strategy maps the government's plan for managing these challenges, and the Electricity and Energy Sector Plan provides more detail on the role of natural gas through the transition.

Figure 5:10 Emissions from domestic gas use by industry grouping, Treasury Baseline Scenario, 2025 to 2050.
Note: 'Other' includes agriculture, built environment, and transport industries.



5.4 Benefits for Australia

The transition to net zero represents a major economic opportunity for Australia – to diversify the economy, support growth, jobs and wages. These benefits are best realised through an orderly and efficient transition, and will increase if Australia scales new clean energy industries and exports.

5.4.1 Action supports investment, growth, jobs and wages while delay is costly

Under Treasury's Baseline Scenario Australia's economy continues to grow, with higher living standards and more jobs, supported by credible and ambitious action. The economy is projected to be 28% larger by 2035 and 81% larger by 2050, relative to current levels. In dollar terms, the economy is expected to be $2.2 trillion larger in real terms in 2050 than in 2025. Real GDP per capita is projected to be $12,000 higher in 2035 and $36,000 higher in 2050, compared to current levels.

An orderly transition also supports sustained increases in living standards, with employment projected to increase by 5.1 million people by 2050 and real wages projected to increase 31% over the 25 years to 2050. Firmed renewables continue to be the cheapest form of new generation investment and put downward pressure on power prices.

The Disorderly Transition Scenario illustrates the potential impacts if Australia delays further climate action. Increased policy uncertainty results in underinvestment and misallocation of capital. Insufficient early emissions reductions require rapid and more costly decarbonisation from 2040 to meet net zero. This leads to weaker economic outcomes, with the economy projected to be a cumulative $2 trillion smaller by 2050 compared to the orderly scenarios, and real wages are projected to be up to 4% lower, in 2050. A disorderly transition also leads to substantial capital stock being scrapped across the 2040s.

An orderly transition, where the direction of policy is clear, enables businesses to plan the investments they need to modernise processes and reduce their carbon emissions. Under the Baseline and Renewable Energy Upside Scenarios, investment is forecast to grow by between 79% and 84% between 2025 and 2050.

The CCA's advice is consistent with these findings, noting that acting early and boldly delivers better outcomes than a late, incremental approach.

The Climate Change Authority advised:

> 'The high capital cost of new technology (e.g. green hydrogen, zero-carbon industrial plant, electric heavy vehicles) is best managed through certainty and sequencing. Without it, businesses risk being forced to invest in long-lived, emissions-intensive technologies that lock in costs and emissions for decades.'
>
> 'Recent energy price spikes are a clear example of the costs of delay….Early, coordinated action is Australia's best insurance policy against climate risks, energy volatility and lost economic opportunity. Planning and acting now is cheaper, fairer and smarter than cleaning up later.'
>
> 2035 Targets Advice, page 63

Under the Disorderly Transition Scenario, wholesale electricity prices are projected to be 17% higher on average during the 2030s and up to 54% higher on average in the 2040s compared to the Baseline Scenario. This is because delayed investment in renewable electricity generation drives a greater reliance on gas generation, which is widely projected to be more expensive.

Cumulative emissions to 2050 are 803 Mt CO_2-e or 15% higher under the Disorderly Transition Scenario than the Baseline Scenario.

5.4.2 Renewable exports support greater benefits

Leveraging Australia's comparative advantages in renewable energy will deliver broad-based benefits to Australians and help grow our exports. These are explored in Treasury's Renewable Exports Upside Scenario.

Economic growth is projected to be meaningfully higher from 2035 onwards relative to the Baseline. In the Renewable Exports Upside Scenario, real GDP per capita is projected to be about $38,000 larger in 2050 than 2025.

This delivers additional benefits through higher wages, higher employment and higher income. Real wages are around 1.6% higher in 2050 and wholesale electricity prices around 20% lower by 2050, compared to the Baseline Scenario. Employment growth is also greater, with occupations such as automotive and engineering trades works, and plant operators seeing expansion as a result of larger clean energy industries.

Australia's exports continue to grow. Green exports alone could be $68 billion higher in 2050 than in the Baseline Scenario, including green metals and renewable ammonia. In addition to economic benefits for Australia, these exports could contribute substantially to global emissions reductions, as discussed in Chapter 11.

5.4.3 Inaction would be costly

The Climate Change Authority advised:

> 'The CSIRO's modelling and Authority's analysis show any actual cost to the economy is negligible, while the benefits from investment in new green industries and avoided damages from climate change are enormous.'
>
> 'The true burden of climate change will lie in the cost of inaction: rising costs to adapt and respond to more frequent and extreme disasters, worsening inequality, and futures undermined for coming generations.'
>
> 2035 Targets Advice, pages 8 and 4

Australia committed to achieve net zero emissions by 2050 in October 2021. That commitment recognised that reducing emissions in line with the rest of the world is in our national interest, and that failing to act would lower economic growth, reduce investment, reduce export and employment opportunities, and increase energy prices.[11]

The cost of not pursuing net zero would be significant and consequential. The CCA's Sector Pathways Review indicates that delaying action to reduce emissions would increase the risk of:

- a later, more expensive and less orderly transition
- missed or delayed opportunities for cost-of-living relief through energy efficiency and electrification
- missing new green export opportunities
- adverse impacts on Australia's reputation, particularly in the region, and
- slower global momentum towards reducing emissions and hence heightened risks of dangerous climate change impacts.[12]

The report 'Australia's Net Zero Transformation: Treasury Modelling and Analysis' discusses the costs of not pursuing net zero in further detail.

6. Five decarbonisation priorities to achieve net zero emissions

Key Messages

The Australian Government will focus on five priorities to achieve net zero:

Clean electricity across the economy

Lowering emissions through electrification and efficiency

Expanding clean fuel use

Accelerating new technologies

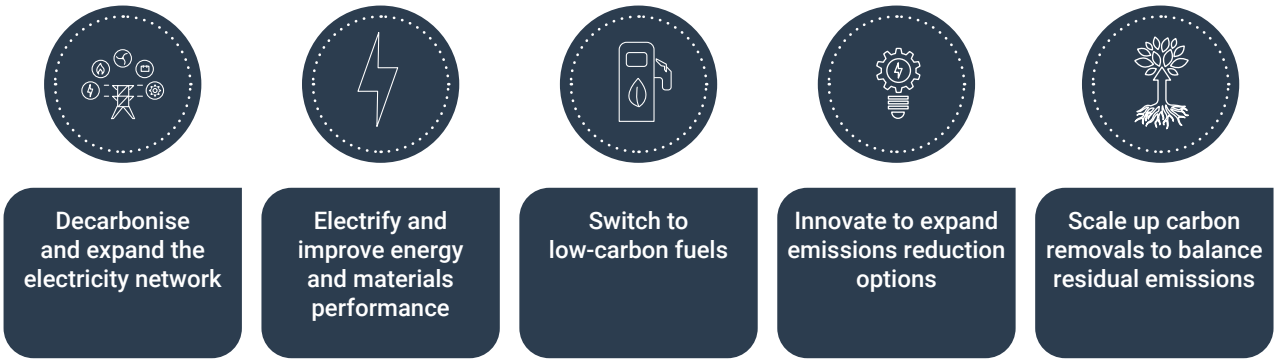
Net carbon removals increased

There is clear evidence that an orderly and efficient transition to net zero will deliver a range of benefits to Australia's economy and communities. This chapter sets out five priorities to achieve net zero. The priorities provide a framework to guide governments, industry and communities in the transition.

Many of Australia's key policies and measures target one of these priorities and are outlined below. Others, such as the Safeguard Mechanism and ACCU Scheme, and public climate finance through the Clean Energy Finance Corporation (CEFC), advance multiple priorities. These important enabling measures are explored in Part 3.

The six sector plans provide further detail on the pathways, opportunities for abatement and policy directions for each sector. Sector plan snapshots are provided at Appendix 1.

Figure 6.1: Australia's five priorities for net zero



6.1 Decarbonise and expand the electricity network

Renewable generation, backed up by gas, batteries and hydro-power, is the lowest cost way to replace Australia's aging coal generation fleet.[13] From 2010 to 2019, the cost of solar photovoltaic (PV) electricity has decreased by approximately 85%, while the cost of wind energy has also declined.[14] Lithium-ion battery costs have fallen by nearly 85% over this period, enabling increased adoption of electric vehicles and energy storage technologies.[15]

6.1.1 Progress to date

Government policy and falling technology costs have unlocked the benefits of renewable electricity for Australia. Already, over 40% of electricity in Australia's two major grids is renewable, representing significant progress to achieving 82% renewable electricity by 2030.

The Climate Change Authority advised:

> "Continuing the transition to a renewables-based electricity system can deliver around half the emissions reductions required to achieve the recommended 2035 target"
>
> 2035 Targets Advice, page 4

However, challenges remain for rolling out large-scale renewables at sufficient scale and pace to meet our goals. Ensuring a stable and attractive investment environment, fast and durable approvals, community support, a sufficiently skilled and sized workforce, and reliable access to global supply chains are crucial to success (see Part 3). Government action to de-risk and incentivise new capacity includes:

- The $20 billion Rewiring the Nation program, which is upgrading and expanding transmission infrastructure to distribute clean electricity and create a more connected and resilient system.
- The Capacity Investment Scheme, through which the Government underwrites contracts to support new renewable generation and dispatchable projects. The Scheme was expanded in July 2025 and will now underwrite up to 26 GW of new renewable capacity and up to 14 GW of new dispatchable capacity.[16]
- The National Renewable Energy Priority List, which provides coordinated support for planning and approvals processes for identified priority projects.
- Establishing the legal and regulatory framework for offshore wind generation in Commonwealth waters, with six declared priority offshore renewable energy zones identified for feasibility licences.
- Supporting key projects that will unlock zero-emissions energy from pumped hydro generation, such as the Snowy 2.0 project and Marinus Link.

Consumer energy resources (CER) like rooftop solar and batteries are growing rapidly, supporting decarbonisation of our electricity system and enabling consumers to lower their bills. In 2024, an estimated 3.2 GW of new rooftop solar PV capacity was installed across Australia,[17] with small-scale solar contributing 32.5 TWh, or 11.5%, of total national electricity generation (an annual increase of 16%).[18]AEMO's Integrated System Plan (ISP), with which Treasury's Baseline Scenario is aligned, projects that rooftop and other distributed solar could contribute over 20% of total annual generation in the NEM by 2050.[19]

The Government's Cheaper Home Batteries Program is helping more Australian households install batteries. Over 55,000 batteries – with total storage capacity of over 1 GWh – have been installed in just over 2 months since the program commenced on 1 July 2025. The Community Batteries for Household Solar program is installing 400 medium-sized batteries to provide shared storage for households across Australia. AEMO's ISP Step Change scenario suggests 44 GW of CER storage could be installed by 2050, up from 1.5 GW in 2024.[20]

Effectively integrating these CER devices to optimise use of existing network infrastructure, generation, storage and consumption of electricity presents an opportunity to support a cost-effective and faster energy transition, system reliability, and lower energy bills for all consumers. The Consumer Energy Roadmap sets out national reform priorities to harness CER's full potential and deliver benefits and equitable outcomes to all Australian consumers.

Alongside action to improve national electricity networks, addressing regulatory barriers and planning processes to enable emerging industries to develop off-grid solutions or tailor on-grid connections will help to meet industrial energy needs. Energy flexibility can improve industrial competitiveness by reducing costs, optimising energy loads with production and minimising transmission costs across the grid. Opportunities for industry are discussed further in the Industry and Resources sector plans.

6.1.2 Future directions

- The Government is updating the CEFC's investment mandate to include a new focus on the rapid roll out of renewable projects to drive down electricity prices, and commit up to $2 billion more to the CEFC General Account, to be drawn down in line with these changes (see Chapter 10).
- The Government seeks to unlock long term investment in large scale firmed, renewable generation and storage capacity. An independent expert panel is currently undertaking a review of National Electricity Market (NEM) wholesale market settings. Its goal is to ensure the NEM remains fit for purpose as Australia transitions from ageing coal-fired power to firmed renewable energy sources like solar, wind, and battery storage. The expert panel will make recommendations to promote investment in firmed, renewable generation and storage capacity following the conclusion of the Capacity Investment Scheme.
- The Government will continue to drive investment in consumer energy resources to reduce pressure on the grid, including through uptake of solar and batteries, and virtual power plants. This includes opportunities for households as well as community, commercial and industrial properties.
- The Government will streamline approvals for renewable energy projects, including through reforms to the Environment Protection and Biodiversity Conservation Act (see Chapter 8).
- The Government will also explore ways to further unlock investment in renewable energy to accelerate emissions reduction in the electricity sector while maintaining energy security. This includes working with States and Territories through Renewable Energy Transformation Agreements and the Energy and Climate Change Ministerial Council.

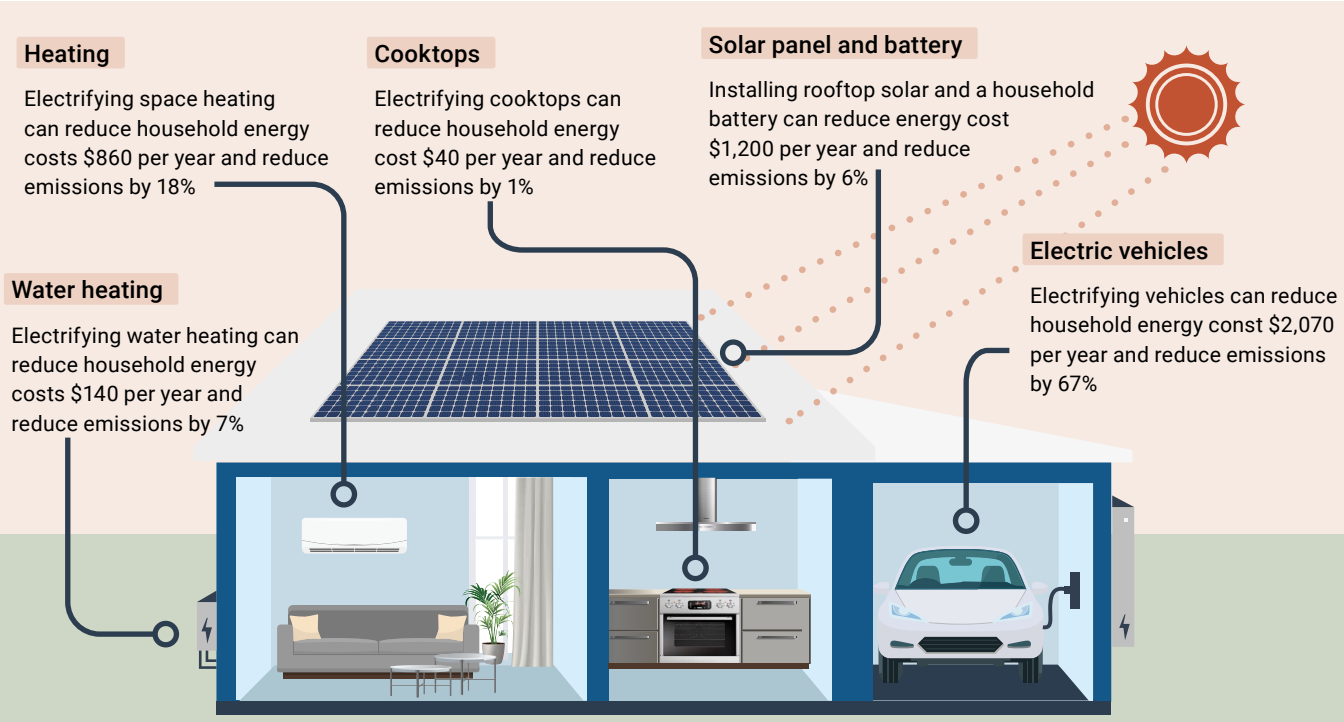
6.2 Electrify activities wherever possible and improve energy performance and materials efficiency

An orderly transition enables households and businesses to plan and make informed decisions when investing in long-life assets such as home renovations, household appliances like hot water and heating, and vehicles.

Improving energy performance* can provide significant savings at the household scale, even where upfront costs are higher. For example, Treasury analysis indicates that a typical Australian household that purchases solar panels, a battery, and electric vehicles, and switches from gas to electricity to power their household, could reduce their energy by around 40% or $4,300 a year after accounting for upfront and financing costs, compared to choosing gas appliances and internal combustion engine vehicles (Figure 6.2).

** Energy performance covers the broad management of energy demand, including energy efficiency; demand flexibility (or load shifting); and electrification or fuel switching.*

Figure 6.2: Modelled benefits of electrification for a typical household, Baseline Scenario**



**Notes: Annualised real costs from 2030 to 2050, including upfront financing and ongoing costs. Assumes a typical two-to-three-person household with two vehicles, average consumption for home heating, cooking and hot water, and purchases a 10.6kW solar system and 10kWh battery.

Using material resources more efficiently also helps reduce emissions across all sectors. Circular economy principles encourage using fewer virgin materials; designing products to be long-lasting, easy to repair, easy to disassemble and safe; and reusing and recycling materials at their highest value at the end of a product's useful life.

A more circular economy lowers energy demand and emissions by retaining existing goods and materials for longer. This in turn avoids emissions associated with new extraction, processing, manufacturing, transport and ongoing use of materials across their lifecycle. As an example, every tonne of scrap metal used in the production of steel delivers 1.5 tonnes of avoided CO_2 emissions.[21] CSIRO modelling suggests that doubling the circularity of Australia's economy by 2035 could contribute to abating up to 23% of greenhouse gas emissions by 2050.[22]

6.2.1 Progress to date

The Australian Government is working collaboratively with states and territories to give consumers the information they need to make informed choices, provide financial support to help key cohorts to electrify, regulate to expand access to efficient appliances and vehicles, and establish supporting infrastructure. Measures include:

- The Greenhouse and Energy Minimum Standards (GEMS) scheme, which regulates minimum energy efficiency standards for a range of products and equipment. It also ensures that information is available for consumers to make informed choices when purchasing products with energy rating labels or product packaging requirements. Since 2012, the GEMS Act has saved Australian households and businesses $12–$18 billion in avoided energy costs. In 2021–22 alone, it is estimated to have saved Australia between $1.3 billion and $2 billion in avoided energy costs while delivering greenhouse gas emissions savings of between 4.1 and 6.3 million tonnes – equivalent to around one-quarter of South Australia's annual emissions.

- The National Australian Built Environment Rating System (NABERS), which measures the environmental and energy performance of Australian buildings. This has seen consumers save almost $2 billion in energy bills and reduced emissions by approximately 13 Mt over the past two decades.[23]
- The $1.1 billion Social Housing Energy Performance Initiative (including $800 million from the Commonwealth) will support energy performance upgrades to over 100,000 social housing properties by 2029.
- The Clean Energy Finance Corporation's (CEFC) $1 billion Household Energy Upgrades Fund provides low-cost finance for energy performance initiatives. It works with co-financiers to create tailored and discounted green finance products which are easy for households to access.

Upfront cost barriers and split incentives remain a barrier for the one-third of Australians who rent or reside in multi-unit dwellings such as apartments.[24] The Government is actively addressing these barriers through the provision of accurate and accessible information for renters and landlords. It is also working with states and territories to provide financial support, including through the $100 million Community Solar Banks program, to provide shared solar for those who can't install their own systems. The Built Environment and Electricity and Energy Sector Plans provides further detail.

The Commonwealth is also supporting electrification in the transport sector.

- The New Vehicle Efficiency Standard is supporting uptake of efficient vehicles, including electric vehicles (EVs). The Standard will reduce costs to consumers and incentivise the supply of low and zero emission vehicles to Australian motorists.
- The $475 million Driving the Nation Fund is investing in cheaper and cleaner transport. This includes innovation through the Driving the Nation Program, delivered by ARENA; $39.3 million to the NRMA to deliver public charging stations across key highway routes, and $60 million through the DRIVEN Program to support installation of EV charging infrastructure at car dealerships and repairers.

These measures are discussed further in the Transport Sector Plan.

In the industry sector, the $400 million Powering the Regions Fund – Industrial Transformation Stream (ITS) is helping facilities reduce their greenhouse gas emissions. It supports projects that improve energy efficiency, switch to cleaner fuels, and electrify industrial processes. It also funds enabling technologies like energy storage and demand management infrastructure. This complements $1 billion of other Powering the Regions fund streams.

Alongside energy performance and electrification measures, the Australian Government is also providing the policy blueprint to drive Australia's circular economy transition. Australia's Circular Economy Framework includes an overarching goal of doubling circularity by 2035 and sets clear priorities and targets to reduce waste and keep materials in our economy for as long as possible. The framework focuses on 4 key sectors – industry, built environment, food and agriculture, and resources – to help drive the transition.

The Australia's Carbon Credit Unit Scheme recognises the contribution waste reduction and treatment can make to reducing emissions. Under the scheme's landfill and waste methods, reductions in waste emissions are eligible for credits where they meet requirements (discussed under 7.6.3).

The Climate Change Authority advised:

> 'Food and garden waste in landfills is a major source of emissions from the waste sector, so channelling waste to dedicated, low-emissions organics processing is an important step. Australian governments are working towards the goal of diverting 80% of waste from landfill by 2030.'
>
> 2035 Targets Advice, page 43

6.2.2 Future directions

Accelerating electrification and improving energy and material performance is a major priority for further work. This includes:

1. A further $85 million to accelerate energy performance by:
    a. modernising the Greenhouse and Energy Minimum Standards (GEMS) Act
    b. investing in the National Australian Built Environment Rating System (NABERS) for non-residential buildings
    c. expanding the Commercial Building Disclosure (CBD) program to more commercial building types beyond office buildings, and
    d. expanding the Nationwide House Energy Rating Scheme (NatHERS) to cover existing homes
    e. establishing a Demand-side Statement of Opportunities to complement existing system planning by the Australian Energy Market Operator (AEMO) and lower the cost of the transition for all consumers.

2. $50 million to help community sports facilities reduce their energy costs and climate-proof their facilities
3. $40 million to accelerate the rollout of kerbside and fast charging.
4. Review the New Vehicle Efficiency Standard in 2026 to assess the policy's effectiveness, refine regulatory systems and mechanisms, and consider the framework in light of the 2035 target.
5. Exploring options for reducing barriers to electrifying small to medium facilities and industrial processes.
6. Exploring how to ensure business, industry and communities have the best signals, opportunities and frameworks to improve energy performance.
7. Implementing Australia's Circular Economy Framework to fast track the circular economy transition and double circularity by 2035.
8. Considering ways to improve solar and battery recycling, recovering key components so we can continue to reuse materials in support of the transition.
9. Working with states and territories to maximise the benefits new buildings can achieve by harnessing the efficiency and cost effectiveness of electrification.

6.3 Switch to low-carbon fuels

Some activities are currently not able to electrify, either because technologies do not exist, or because those technologies are not commercially competitive. In particular, high-heat manufacturing processes for products such as steel and cement and long-distance heavy road, air and travel, are unlikely candidates for electrification in the short to medium term.

For these activities, alternative fuels such as low carbon liquid fuels, biomethane, renewable hydrogen and renewable ammonia provide a pathway to decarbonisation. For some industry sectors that rely on coal, such as ironmaking, natural gas represents an immediate option to reduce emissions, with the prospect of transitioning to renewable hydrogen or other low-carbon fuels as they become cost-effective and available at scale (see Chapter 5).

Renewable hydrogen and other renewable gases: Renewable hydrogen is created through electrolysis, which uses renewable electricity to separate water molecules into hydrogen and oxygen.

Potential applications include powering a green metals industry, displacing natural gas in chemical manufacturing and high-heat industrial processing, and decarbonising long-distance heavy transport.

Other renewable gases, such as biomethane, are chemically identical to fossil methane and can be used as a direct substitute for natural gas. Biomethane is derived from biogas, which is produced using various organic materials as feedstock, such as green waste, food industry byproducts, agricultural and industrial waste.

Low carbon liquid fuels: LCLFs can be produced sustainably from waste materials, biomass, or by combining hydrogen from low or zero carbon feedstocks with captured carbon dioxide. Sustainable aviation fuels and renewable diesel are two examples of LCLFs that can be used as 'drop-in' replacement fuels, avoiding the cost of upgrading assets and infrastructure. Australia is already a significant supplier and exporter of biomass for LCLF production overseas.

Global demand for these commodities is expected to grow rapidly. For example, the International Energy Agency estimates global demand for hydrogen could reach 430 Mt by 2050, with 327 Mt of this demand met by renewable hydrogen;[25] up from 100 Mt produced in 2024, of which less than 1% was met by renewable hydrogen.[26]

6.3.1 Progress to date

Under Future Made in Australia, the government is helping kick-start development of low-carbon fuel industries by incentivising innovation and supporting production.

Research and development (R&D) will support cost-reductions in the production, transport and use of these fuels. Alongside R&D, incentivising the production will yield on-site learnings and help to realise economies of scale, driving further efficiencies. The government is directing significant investment into these priorities, including:

- $250 million under the FMA Innovation Fund to supporting research and development for nascent LCLF technologies.
- $33.5 million under the Sustainable Aviation Fuel Funding Initiative to support the development of LCLF production from renewable feedstocks in Australia. Five LCLF projects have been approved, with others under consideration.
- $8 billion over 10 years from 2025 to accelerate investment in renewable hydrogen through the Hydrogen Production Tax Incentive and Hydrogen Headstart program.

Putting in place enabling systems like certification, standards and monitoring are critical to provide certainty to investors and potential customers on the emissions

associated with production of LCLF and ensure that drop-in fuels align with rigorous safety standards. Government is working closely with industry to implement the frameworks and regulations that ensure best practice underpins growth including through:

- Amendments to the National Greenhouse and Energy Reporting Scheme to enable market-based reporting of specific LCLF types within shared infrastructure.
- Expanding the Guarantee of Origin (GO) Scheme to track and verify emissions from the production of LCLF and other commodities.
- A new fuel quality standard for (paraffinic) renewable diesel, enabling its supply in Australia.

6.3.2 Future directions

To build a supply chain for Australian low carbon liquid fuels, the Australian Government will invest $1.1 billion in a new Cleaner Fuels Program. This will help stimulate private investment in Australia's first onshore low carbon liquid fuel refineries, backing local innovators, making fuel supply more resilient and bridging the price gap for early adopters. The Government will engage with industry on how to make sure Australian liquid fuel users have a fair chance to capture the emissions reduction potential unlocked by low emission Australian fuels.

In addition, the government will pursue:

- Further collaboration with international trading partners to support the research, development and deployment of fuel alternatives and supporting infrastructure.
- National collaboration to support redirection of waste streams as feedstocks for production of LCLF.
- Development of a national Bioenergy Feedstock Strategy to establish a coordinated, national direction for the sustainable evolution of bioenergy feedstock production.

6.4 Innovate to expand emissions reduction options

Research and development, and scaled technology deployment, will be fundamental to unlocking cost effective abatement solutions for sectors where abatement options are not yet available or commercial.

Australia has an extensive innovation ecosystem, spread across all levels of government, the private sector and academia.

6.4.1 Progress to date

The **Australian Renewable Energy Agency (ARENA)** provides grants to accelerate the pace of pre-commercial innovation, improving the feasibility of emerging renewable energy technologies and growing their uptake (Figure 6.3).

The Government replenished ARENA's statutory funding to 2038-39 – a total of $8.2 billion– and expanded its mandate to include electrification technologies, energy efficiency technologies, and manufacture of renewable energy technologies.

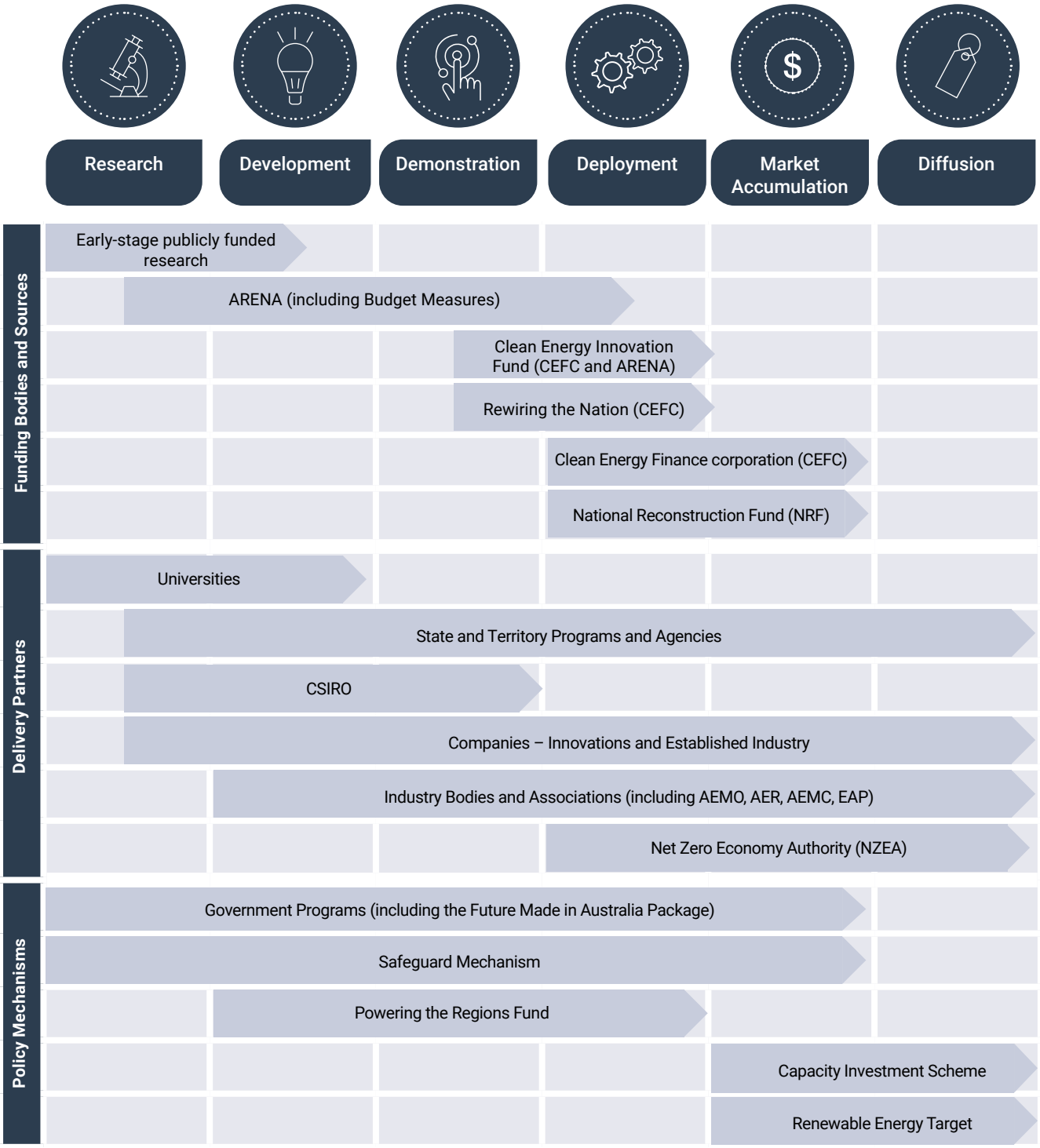
ARENA also plays a critical role in the transition to net zero as the body responsible for administering the $1.5 billion Future Made in Australia Innovation Fund. This supports pre-commercial innovation, demonstration and deployment of technologies to support green metals production, clean energy technology manufacturing and LCLFs.

The **Clean Energy Finance Corporation (CEFC)** is a specialist investor in Australia's net zero transition (see further Chapter 10). Part of their capital allocation is targeted at critical R&D opportunities in clean energy including:

- The $500 million Powering Australia Technology Fund to support projects and businesses developing or commercialising climate technology opportunities,
- The $200 million Clean Energy Innovation Fund which supports early-stage climate technology innovators to develop their technology.

Other special investment vehicles supporting technology deployment like the National Reconstruction Fund, are discussed in chapter 10.

Figure 6.3: ARENA's collaboration across the innovation chain. Source: ARENA Corporate Plan 2024-25 to 2027-28



Other organisations and forums fundamental to Australia's innovation landscape include:

- The **Commonwealth Scientific and Industrial Research Organisation (CSIRO**), has led the development of a range of world-changing net zero focused innovations as well as working to tackle emissions from the most challenging sectors, such as steel, aviation and agriculture.
- **Cooperative Research Centres (CRCs)** bring together world-class universities, government and industry to address long-term challenges. Not limited to net zero, some of the current CRCs cover emissions in fuels, agriculture, buildings, heavy industry and waste. The Zero Net Emissions Agriculture Cooperative Research Centre (ZNE Ag CRC), which commenced in July 2024, has four targeted research programs to support sector decarbonisation. The Australian Government invested $87 million over 10 years to establish the ZNE Ag CRC.
- **Research and Development Corporations (RDCs)** help drive agricultural innovation, where producers and the Australian Government co-invest in research and development. Emissions reduction is one goal of research across commodities, alongside improved productivity and competitiveness.
- Business investment is supported by the **Research and Development Tax Incentive (RDTI).** The RDTI helps companies innovate and grow by offsetting some of the costs of eligible research and development. This program has already assisted private sector research in technologies like more efficient solar panels and more compact batteries.

The National Science and Research priorities include transitioning to a net zero future as a priority to align investment in science and research across industry and the science community. The Australian Government's current Strategic Examination of Research and Development will recommend ways to get more value from investment in research, harness and grow business investment in R&D, and leverage Australia's scientific strengths to address national priorities.

Many of the research and technology needs for net zero are global. International collaboration, including through partnerships, can create opportunities for deployment of international solutions domestically, and export of Australian technology and practices to overseas markets.

Australia has 10 bilateral climate and clean energy partnerships, and demonstrates leadership in multilateral organisations such as the IEA's Technology Collaboration Program and the Clean Energy Ministerial partnership

6.4.2 Australia and Germany's cooperation on energy and climate

In 2024 Australia signed an agreement with Germany to deepen cooperation on new renewable hydrogen supply chains. This includes a $660 million H2Global funding window to guarantee a purchase agreement for Australian hydrogen producers into the European market. This joint H2Global window will give Australian producers the opportunity to export to some of the world's largest renewable hydrogen markets, establishing new renewable supply chains with Europe and supporting a Future Made in Australia.

6.4.3 Future directions

Australia will continue to grow our innovation economy, to support. The Government will:

- Establish a new $5 billion Net Zero Fund within the National Reconstruction Fund, drawing from and refocusing existing capital to support major investments by large industrial facilities in decarbonisation and energy efficiency, and scale up manufacturing low emissions technologies
- Target R&D to reduce the embodied emissions within materials and direct emissions from construction activities including pre-fabricated and modular construction and low-emissions construction materials.
- Informed by the Government's Strategic Examination of R&D, look for ways to streamline and scale-up research collaborations that power the transition.
- Continue fugitive and methane emissions reduction at industrial facilities, including through delivery of a landmark study with the UN Environment Program to improve understanding of methane emissions, important for steel and energy supply chains (see section 7.1).
- Strengthen strategic partnerships with governments, industry and international partners to progress important climate technologies with the potential to drive down emissions beyond 2035.
- Accelerating new technologies is important to decarbonising heavy industry, with the deployment of those technologies incentivised by the Safeguard Mechanism, due for review in 2026-27.

6.5 Scale up carbon removals to balance residual emissions

Regardless of how effectively we reduce emissions, all available analysis indicates our economy will still be emitting greenhouse gases in 2050 (see Chapter 5). Carbon dioxide removal (CDR) refers to technologies, approaches and practices that remove CO2 directly from the atmosphere and store it in the ocean, on the land surface or below ground, including in geological formations.

CDR includes land-based methods, like growing trees, as well as engineered removals through technologies such as Bioenergy with Carbon Capture and Storage (BECCS) and Direct Air Capture (DAC).

For all forms of removals, the storage must be long-term and durable. In addition to driving new removals, it is important to protect and maintain existing carbon stores, and regularly monitor to ensure the carbon remains stored.

6.5.1 Storing carbon in vegetation and soils

Australia has substantial, relatively low-cost potential for land-based carbon removals, particularly reforestation. Integrating carbon projects into agricultural land uses can improve productivity, increase soil moisture and reduce input costs. This provides an opportunity for farmers and land managers to diversify their income streams through carbon credits, improving their economic resilience.

But there is significant uncertainty around the scale and composition of land-based sequestration that may be taken up as Australia transitions to net zero. Estimates of the carbon sequestration potential of different land management practices and plant types vary widely, particularly over time and in light of the impacts of climate change. Sequestration rates will also depend on landholder decisions regarding whether and when to undertake carbon management projects.

Concerted effort throughout the transition will be needed to ensure that carbon projects in the land complement, rather than replace, food and fibre production, as discussed in Chapter 14.

6.5.2 Diversifying opportunities for carbon dioxide removal

While Treasury's analysis suggests engineered CDR technologies may only play a small role in the period to 2050, there are several reasons that continued research and development are important for these technologies.

Developing a range of approaches to balance residual emissions – rather than relying on land-based options alone – will make Australia's net zero transition more robust. Land-based sequestration is exposed to changing climate conditions and impacts, including increased frequency of extreme events such as bushfires, which can reverse carbon stores.

Engineered carbon removal and management technologies could complement land-based carbon removals. These technologies can abate large volumes of emissions with a relatively small land-footprint – particularly those using geological storage. They could become increasingly important to sustain net zero emissions – and potentially net negative emissions – beyond 2050.

The adoption of engineered CDR technologies is currently hindered by high costs. However, investment now could provide opportunity to innovate to reduce costs and provide industries with more options to offset their emissions.

6.5.3 Progress to date

The Australian Government has invested in developing engineered and land-based carbon storage domestically.

- The Australian Carbon Credit Unit (ACCU) Scheme provides a way for land managers to earn money for eligible carbon storage on their land. The Government has invested over $1 billion in the ACCU Scheme to date, unlocking over 169 Mt of abatement.[27] The Government is progressing reforms to the ACCU scheme, underpinned by $66 million in funding over 5 years. This includes a new proponent-led method development process and supporting increased First Nations participation (see further Chapter 13).
- The Carbon Farming Outreach Program is supporting producers and land managers, including First Nations Peoples, to understand their emissions and make informed decisions to manage them over time, including by increasing carbon stores in trees and soils.

Native revegetation planting, Australia.

- The government has provided $73.8 million over four years from 2024 to the Support Plantation Establishment program. This aims to increase future plantation forest resources available for processing while also contributing to Australia's emissions reduction targets.
- The Carbon Capture Technologies Program is committed to accelerating research, development and demonstration of carbon dioxide capture, removal and use technologies. The program has so far committed $65 million to 7 projects.

6.5.4 Future directions

To ensure Australia maintains a diverse and sustainable portfolio of scalable carbon removal options to balance residual emissions, the government will:

- Improve data collection and analytical capabilities to better understand land-use changes and opportunities for integration of carbon removal projects within agricultural production systems.
- Examine the carbon, biodiversity and agricultural productivity co-benefits that expanded landscape restoration efforts could deliver, strengthening the climate resilience of regional Australia.
- Open a second round of the Carbon Capture Technologies Program for $52 million to continue to accelerate the development of new carbon management technologies, critical to reaching net zero by 2050.
- Deliver a Carbon Dioxide Removal (CDR) Roadmap in partnership with CSIRO. The CDR Roadmap will consider the realisable potential of CDR in Australia, and options for how we can responsibly deploy and scale the industry.
- Consider options for developing, deploying, and scaling carbon management technologies. This includes supporting CSIRO and Geoscience Australia to assess the nation's carbon removal and storage potential, identify cost and capability gaps, and prioritise key technologies and research, building a strong evidence base to inform Australia's carbon management policy.
- Work with states and territories to review data and policy gaps to support efficient approval and permitting of processes to deploy carbon removal technologies at scale.

7. Reducing non-CO_2 emissions

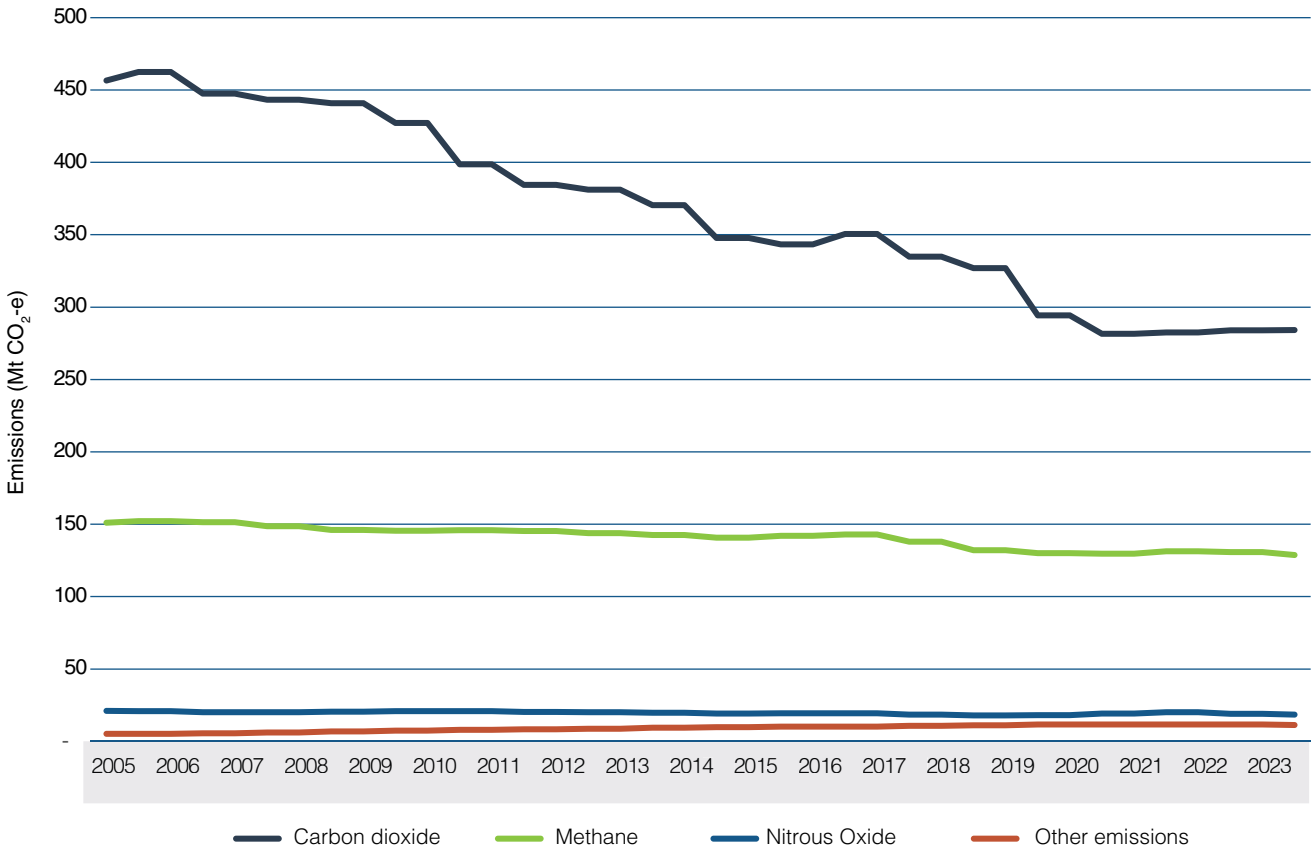
Key Messages

- Greenhouse gases such as methane and nitrous oxide contribute to climate change, and comprise a substantial share of Australia's emissions.
- The government is supporting methane emissions reduction in Australia, and working with other countries through the Global Methane Pledge.
- Australia is phasing-down HFCs under the *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989* toward an 85% reduction from baseline in 2036.

While CO_2 emissions account for approximately 64% of Australia's total emissions in 2024 and have declined by about 38% from 2005,[28] Australia needs to address emissions from all greenhouse gases if it is to reach net zero (Figure 7.1).

Non-CO_2 emissions, such as methane and nitrous oxide accounted for 29% and 4% of our national emissions in 2024 respectively.[29] These can be compared to CO_2 through an emissions metric called global warming potentials (GWPs). Under the Paris Agreement, Parties are required to use 100-year GWP values (GWP-100) set out in the 2014 Intergovernmental Panel on Climate Change Fifth Assessment Report.[30] For example, nitrous oxide (N_2O) has a GWP-100 value of 265, which means every tonne of N_2O emitted has the warming impact of 265 tonnes of CO2 and is expressed as 265 CO_2 equivalents (CO_2-e).

Figure 7.1: Emissions by greenhouse gas, 2005 to 2024



Cattle mustering, Western Australia, Australia.

7.1 Methane emissions

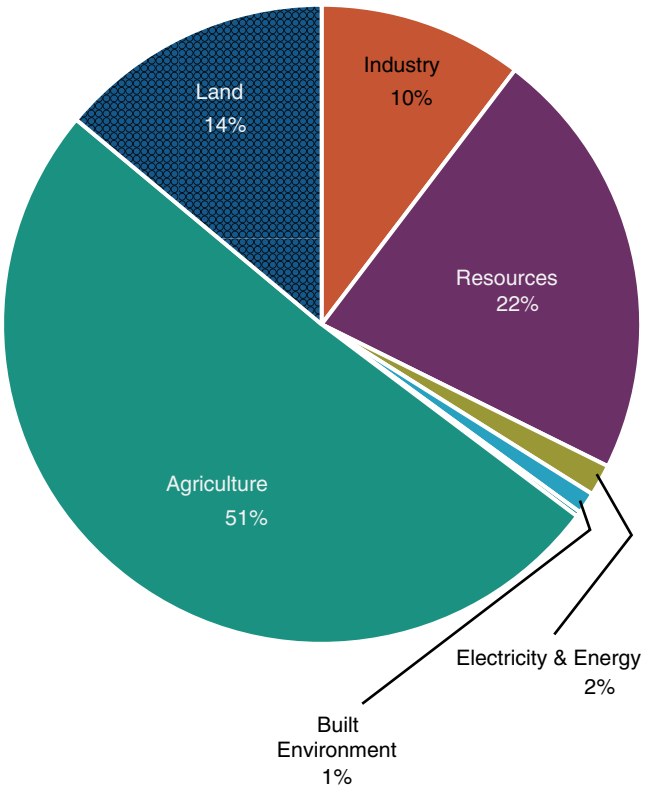
Methane is mainly produced by activities associated with livestock and cropping, fossil fuel extraction and distribution, burning of biomass (such as bushfires and controlled burning), and waste and wastewater treatment (Figure 7.2).

Methane does not stay in the atmosphere as long as CO_2, but absorbs much more energy while there. Methane has a GWP-100 value of 28, but has a global warming potential 84 times that of CO_2 over 20 years.[31] Acting now to reduce methane emissions can help reduce climate impacts in the next few decades. Strong methane emissions reduction could help limit the risk of overshooting the global temperature goals and provide benefits to the climate that reductions in CO_2 emissions cannot deliver alone.

Australia's methane emissions have declined since 2005, partly due to reductions from livestock and biomass burning (such as savanna fire management) in the agriculture and land sector (Figure 7.1).[32]

Strong and early reductions in methane emissions could make a significant contribution to reducing the extent of climate change. We are acting here in Australia and also working with other countries through the Global Methane Pledge to ensure significant global methane emission reductions are achieved by 2030.

Figure 7.2: Share of methane emissions in Australia by sector, 2024



7.1.1 Reducing methane emissions in the agriculture and land sector

The agriculture and land sector is Australia's largest source of methane emissions, with agriculture accounting for 51% (66 Mt CO_2-e) and land a further 14% (18 Mt CO_2-e) in 2024.[33] Methane is primarily produced from the digestive process of ruminant livestock (such as cattle and sheep). Methane emissions from the land sector are a combination of human-induced sources such as land conversion and clearing, and biomass burning in addition to natural sources such as wetlands.

There are limited options to reduce these emissions, particularly in extensive livestock grazing systems, however the Australian Government is investing in research to support commercially-viable methane solutions.

- The $29 million Methane Emissions Reduction in Livestock (MERiL) program provides support for researching and developing methane-reducing feed additives and forage legumes for livestock. Results from the studies showed significant methane reductions from the feed additives Asparagopsis seaweed and 3-NOP. The Government has now invested over $17 million to support the commercialisation and scaled-up production of Asparagopsis.
- The Zero Net Emissions Agriculture Cooperative Research Centre (ZNE Ag CRC), which commenced in July 2024, includes methane reduction from livestock as one of its four research programs. The Australian Government invested $87 million over 10 years to establish the ZNE Ag CRC, and a further $4 million over 10 years for the Department of Agriculture, Fisheries and Forestry to become a partner.

Improving measurement, reporting and verification (MRV) tools for farmers and producers will help keep track of methane and other emissions. This can uncover opportunities to improve farm practices to reduce emissions and costs, while bolstering farm productivity. The government is improving greenhouse gas accounting at national and farm scales, including developing voluntary emissions estimation and reporting standards for the sector, and supporting incorporation of the standards within GHG accounting tools and calculators. The Agriculture and Land Sector Plan provides further detail.

7.1.2 Reducing resources sector methane emissions

The resources sector is the second-largest source of methane emissions in Australia, accounting for 22%. In 2024 these were predominantly from fugitive methane emissions from coal mining (23 Mt CO_2-e), leakage from natural gas processing (2 Mt CO_2-e), and venting of methane associated with oil and gas extraction (1 Mt CO_2-e).[34]

The Safeguard Mechanism covered 77% of these emissions in 2024. It provides a key incentive for oil and gas producers to implement abatement options such as recovering and reusing methane emissions through installing new devices, electrification and detecting and repairing leaks. Many of these options are available at a low, or even no-net cost to operators, and are projected to make a substantial contribution to reducing fugitive methane emissions in coming years. The Australian Government will continue to work closely with state governments and their agencies so that coal mine methane abatement technologies can be safely and efficiently deployed.

The Safeguard Mechanism is being reviewed in 2026-27-, which includes consideration of its incentives to drive onsite abatement. This includes incentives for methane abatement.

7.1.3 Reducing industry and waste sector methane emissions

The industry sector contributes about 10% of national methane emissions. Most of these emissions come from the waste subsector through landfills; wastewater and solid waste treatment also contribute alongside a a small proportion from the industrial processing subsector.

States and territories regulate the operation of landfills and other waste facilities. The ACCU Scheme incentivises action beyond that required by regulation, through landfill and waste methods which cover projects such as:

- treating and destroying waste using eligible waste treatment equipment
- converting waste into biomethane to produce electricity
- separating organic waste from other waste.

There are over 220 waste-related projects registered under the ACCU Scheme; these have been issued over 51 million ACCUs cumulatively since 2010.[35]

Methane captured from a wastewater treatment facility is used to power the site in Nowra, New South Wales, Australia.

7.1.4 Ongoing improvement in monitoring methane emissions

The government tracks the latest science, technologies and practices to continuously improve the emissions data that underpins Australia's abatement policies and actions. This includes $10.2 million to improve fugitive methane emission estimation and reporting by:

- Establishing an Expert Panel, led by Australia's former Chief Scientist, to provide advice on the current scientific understanding of atmospheric measurement approaches to fugitive methane emissions, and whether and how those approaches could help improve Australia's fugitive methane emission estimates now and into the future
- Supporting a world's first study in Australia, coordinated by UNEP's International Methane Emissions Observatory (IMEO), to evaluate the capability of such approaches in a simulated surface mine setting
- Reviewing Australia's facility-level method for estimating fugitive methane emissions from surface mine coal extraction to inform continual improvement in our monitoring.

Findings from this work will make significant contributions to international understanding of approaches for the detection and quantification of fugitive methane emissions.

7.2 Synthetic greenhouse gas emissions

Synthetic greenhouse gases are manufactured chemicals commonly used in refrigeration, air conditioning, and fire extinguishing. Synthetic greenhouse gases can remain in the atmosphere for a long time, contributing to their high global warming potentials, however they only make up a small proportion of Australia's emissions at approximately 3%.[36]

Hydrofluorocarbons (HFCs) are the largest contributor to high global warming potential synthetic greenhouse gases in Australia. For example, HFC-134a, which has been widely used in automotive air conditioning, has a GWP-100 value of 1,300, meaning every tonne of HFC-134a emitted has the warming impact of 1300 tonnes of CO_2.

Australia was one of the first countries to ratify the Montreal Protocol on Substances that Deplete the Ozone Layer (the Montreal Protocol). An estimated 40 Mt CO_2-e was avoided since 1995 through Australia's successful phase-out of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs).[37] The Kigali amendment to the Montreal Protocol, agreed in 2016, included an agreement to a global phase-down of HFCs.

Australia's phase-down of HFCs under the *Ozone Protection and Synthetic Greenhouse Gas Management Act* 1989 commenced in 2018 and is reducing consumption of HFCs through an annual quota on imports of bulk HFCs that decreases every 2 years, reaching an 85% reduction from baseline in 2036. Australia commenced the phase-down earlier – and from a lower mandated baseline and with more frequent reductions – than it was required to do under the Montreal Protocol. For 2026 and 2027 the total import of bulk HFCs will be capped at 4.25 Mt CO_2-e and gradually reduce to 1.6 Mt CO_2-e in 2036.

HFC phase-down is contributing to Australia's greenhouse gas emissions reduction targets and is encouraging industry to move to alternative technologies using lower or zero global warming potential gases (Figure 8.2).

Work is continuing. Restrictions on the import of small split-system air conditioning units using high GWP HFCs commenced in 2024, and programs are underway across states and territories to encourage the uptake of more energy-efficient refrigeration and air conditioning equipment.

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3

Cross-cutting policies and enablers

Aerial panorama of unique ecosystem of Noosa Everglades - beautiful curvy noosa river and lush, green wetlands in South East Queensland, Australia, near Sunshine Coast and Noosa Heads

Australia's transition to net zero is underway, but there remain barriers to achieving decarbonisation at the pace and scale required.

These include slow and complicated planning and approvals processes for renewable energy and enabling infrastructure, supply chain constraints, investment requirements, and workforce shortages.

The transition will require coordinated action across the economy to address these barriers. Getting these settings right will help share benefits across the country and build confidence, accelerating the transition to the pace we need to achieve our 2035 target and net zero by 2050.

Chapter 8

Discusses how establishing the right planning frameworks will accelerate the transition while achieving environmental outcomes

Chapter 9

Sets out the role of carbon markets

Chapter 10

Highlights how the Australian Government is facilitating domestic and foreign investment for net zero

Chapter 11

Explores actions underway to develop a skilled and diverse workforce

8. Reforming approvals to transition sustainably

Key messages:

- Australia's net zero transition requires rapid deployment of major infrastructure projects.
- Planning and environmental approval processes need to be reformed to deliver faster outcomes and stronger environmental decisions.

The Climate Change Authority advised:

> 'Reforming Australia's planning system in a way that manages competing priorities while also accelerating planning and approval decisions, will need to be a key priority for governments.'
>
> Sector Pathways Review 2024, page 179

Australia has a long history of delivering major infrastructure projects. But the transition to net zero represents a step-change in scale, requiring more major projects across the country to be deployed at an accelerated pace. This includes wind and solar generation and transmission projects, mines and processing facilities for critical minerals, and other net zero industries. The deployment of new infrastructure will need to advance alongside the normal business of constructing housing, roads, and other infrastructure.

The total land area required to build Australia's renewable capacity and transmission network to 2050 is estimated to be a very small proportion of our total land mass.[1] In addition, wind turbines, solar arrays and transmission lines can coexist with other land-uses (for example, solar PV on buildings and windfarms integrated into broadacre cropping).

With the right systems in place, Australia can facilitate rapid deployment, while ensuring we meet Australia's ambitions for protecting and restoring our natural environment, protecting food security and agriculture production and preserving First Nations heritage. These are all essential for maintaining social licence for the transition.

This chapter explores the areas where governments are working to update planning, environmental approvals and other processes to balance sometimes competing priorities and deliver on multiple national objectives.

8.1 States and territories administer Australia's planning rules

The Climate Change Authority advised:

> 'Australian planning processes are often complex, requiring the involvement of multiple government agencies and multiple levels of government to progressively approve elements of a project.'
>
> Sector Pathways Review 2024, page 180

In Australia, land-use planning and environmental approvals are the responsibility of all levels of government, with state, territory and local governments having primary remit. Like the Australian Government, these jurisdictions are making efforts to accelerate approvals to support the timely deployment of large-scale renewable energy projects. For example, in November 2024, the NSW Government introduced the Renewable Energy Planning Framework to support renewable energy development, including within Renewable Energy Zones. The framework provides guidance and tools to increase transparency, improve investment certainty, and enable faster and more consistent approval pathways for projects that align with best practice.

8.2 The Commonwealth regulates issues of national significance

Australia's national environmental law is the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Most activities regulated under the EPBC Act are also subject to state and territory or local government laws. The EPBC Act applies to any activity that is likely to have a significant impact on identified nationally protected matters.

The Australian Government is committed to strengthening and streamlining our national environmental laws and establishing a national environment protection agency.

Reforms will deliver:

- stronger environmental protection and restoration
- more efficient and robust project assessments
- greater accountability and transparency in decision making

The reforms are about improving national productivity through faster and more streamlined environmental approvals as well as delivering greater environmental protections through strong new environmental standards.

8.3 This national challenge needs a federated response

While each state and territory is responsible for their own planning laws, national collaboration can help facilitate investment and faster deployment. This is especially critical in removing duplication between levels of government where a single project must undergo both state/territory and national approval.

The Australian Government is working with jurisdictions to support, more effective environmental regulation, through reforms that are focused on reducing duplication and enhancing landscape-scale approaches for development and conservation.

National collaboration is also important to ensure water resource management is aligned with climate goals, alongside agriculture, industry and community needs and supports the natural environment. Many net zero technologies rely on water supplies including hydrogen, hydroelectricity, low-carbon liquid fuels and carbon sequestration. Suitable planning by each level of government is needed to ensure sustainable supply for all users.

To balance these needs and plan for sustainable water use, governments are collaborating on key water infrastructure and planning. Governments are considering principles and actions that will help plan for and manage demands for water, including in the context of net zero transition, through development of the National Water Agreement.

Collaboration also occurs through forums like the Environment Ministers Meeting and the Energy and Climate Change Ministerial Council (discussed further in Chapter 12). Bilateral efforts, such as the Renewable Energy Transformation Agreements between the Australian Government and individual states and territories have also delivered some progress. For example, the South Australian Agreement includes a commitment from the Australian Government to underwrite 1000 MW of new wind and solar and 400 MW of new storage capacity in South Australia through the Capacity Investment Scheme. The South Australian government will improve community engagement and planning and approvals processes to ensure projects can be built by 2030, among other measures.

The Australian Government has created the National Renewable Energy Priority List with states and territories to deliver a 'faster yes or faster no' to identified key renewables projects. Identified projects will receive additional support and facilitation through regulatory and environmental processes. They will still have the same scrutiny applied as any other project and continue to be required to meet all statutory requirements. The inaugural Priority List identifies 56 priority projects consisting of 24 transmission, and 32 generation and storage projects. If approved, these projects could deliver an additional 16 GW of generation and approximately 6 GW of storage capacity across the nation.

9. The role of carbon markets in Australia's transition

Key messages

- Carbon markets are an efficient way to drive emission reductions, and an important part of Australia's suite of policy measures.
- The Australian Government will continue implementing reforms to ensure Australia's carbon markets:
  - are effective and operate with high-integrity
  - complement other policies and measures
  - support broad participation
  - deliver additional benefits where appropriate
  - avoid adverse impacts, including to biodiversity and land access for agricultural production.
- Australia will play a constructive role to support robust and high-integrity international carbon markets.

Carbon markets incentivise cost-effective abatement within a robust measurement framework that helps ensure integrity. Broad participation from landholders, communities and businesses will help spread the benefits of climate action. Complementary and aligned policy, planning and market frameworks will support related objectives, including cultural and nature benefits, and agricultural productivity.

9.1 Australia's carbon markets

Carbon markets are markets in which carbon units, corresponding to a fixed quantity of greenhouse gas emissions or abatement, are exchanged within a defined framework. Australia has 3 national carbon market frameworks helping to achieve low-cost abatement:

1. The **Australian Carbon Credit Unit (ACCU) Scheme** incentivises carbon abatement through projects ranging from reforestation to energy efficiency. Proponents carry out projects to reduce emissions or sequester carbon. An **ACCU** reflects a tonne of carbon dioxide-equivalent sequestered or avoided (Box 9.1).

   ACCU Scheme projects are subject to strict eligibility criteria to ensure credited abatement is additional, measurable and evidence based. For a project to generate ACCUs, it must follow the rules set out in a method. Methods are required to meet legislated Offset Integrity Standards and the independent Emissions Reduction Assurance Committee determines whether these standards are met. Methods are also periodically reviewed to maintain integrity. Since 2011, the ACCU Scheme has delivered over 169 million tonnes of abatement across Australia, backed by more than $1 billion in government support.[2]
2. The **Safeguard Mechanism**, sets emissions limits known as baselines for large industrial facilities and covers 31% of Australia's emissions.[3] Covered facilities are required to either directly reduce their emissions on-site or surrender carbon units to meet their baselines. When a facility's emissions are below its baseline, it is issued **Safeguard Mechanism Credits (SMCs)** corresponding to the difference between its emissions and its baseline. SMCs are a type of carbon unit that can be traded or used by the facility.
3. **Voluntary Carbon Markets** enable companies and individuals to support emissions reductions beyond their own direct activities by purchasing carbon units. This may contribute to achieving voluntary corporate emission reduction targets; balancing the emissions impacts of a product or service such as air travel; or philanthropic efforts to reduce emissions. Both ACCUs and international carbon units (created from emission reduction projects overseas) are purchased in voluntary markets. Any purchases of international units do not count towards Australia's national emission reduction targets.

Box 9.1: The evolving role of the ACCU Scheme

The role of the ACCU Scheme in Australia's climate policy landscape has evolved substantially over time.

The *Carbon Credits (Carbon Farming Initiative) Act 2011* (CFI Act) established the legislative framework for ACCUs.

From 2012 to 2014, the ACCU scheme operated as a complement to the Carbon Pricing Mechanism. The mechanism set a carbon price for major emitters; those emitters could use ACCUs to help meet their obligations. The mechanism was central to Australia's emissions reduction efforts at the time, supported by new institutions like the Clean Energy Regulator and the Climate Change Authority.

After the Carbon Pricing Mechanism was repealed in 2014, the ACCU scheme, became the central measure to drive emission reductions. In 2015, the government established the Emissions Reduction Fund and over subsequent years committed $3.1 billion under long term contracts to purchase a total of almost 250 million ACCUs.[4]

In 2022, Australia legislated stronger national emission reduction targets. The Safeguard Mechanism was reformed in 2023 to drive emission reductions at covered facilities, the New Vehicle Efficiency Standard was legislated in 2024, and the Capacity Investment Scheme was established to accelerate investment in renewable energy generation and clean dispatchable capacity. The ACCU Scheme remains a key tool but now operates as part of a broader suite of climate measures. The primary source of demand for ACCUs is now from Safeguard facilities. [5]

While these schemes operate under different frameworks, they are also linked. For example:

- under the Safeguard Mechanism, ACCUs can be surrendered by Safeguard facilities to help meet their compliance obligations, alongside SMCs.[6]
- voluntary market participants can purchase ACCUs to help meet their voluntary commitments.

Alongside these national frameworks, states and territories have their own mechanisms for incentivising least-cost abatement through carbon markets. For example, the Victorian Energy Upgrades program requires energy retailers to relinquish Victorian Energy Efficiency Certificates to government each year to meet regulatory obligations.

There are also markets that trade in energy savings or renewable energy production, such as the Commonwealth's Renewable Energy Target Scheme or NSW Renewable Fuel Scheme. While these markets trade units corresponding to a fixed unit of energy rather than carbon, they have many parallels to carbon markets and make a valuable contribution to emissions reductions.

At the international scale, carbon market frameworks allow for the trade of carbon units between countries. The framework established under Article 6 of the Paris Agreement supports the trading of Internationally Traded Mitigation Outcomes (ITMOs) to contribute to the achievement of nations' Nationally Determined Contributions (NDCs). These activities enable purchasing countries to achieve existing or more ambitious emissions reduction targets, potentially at a lower cost or on a faster timeline compared to what might be possible through domestic action alone. The Australian Government has been an active partner in establishing a robust framework for carbon trading through the Paris Agreement and continues to provide capacity building within the Indo-Pacific to enable broad participation.

9.2 Carbon markets support Australia's net zero transition

Governments are well placed to set emission reduction goals, but do not have complete information regarding abatement opportunities that exist across the economy. A key strength of carbon markets as a policy tool is that they encourage businesses to reduce emissions wherever they are most cost effective. This flexibility reduces the cost of meeting climate goals and can enable more ambitious goals to be achieved. Linkages across carbon markets can increase their efficiency; this is a key reason for allowing ACCUs to be used for Safeguard Mechanism compliance.

9.2.1 Safeguard and ACCU market operation

The Safeguard Mechanism allows facilities to meet their obligations by using a mix of on-site abatement and carbon units. Safeguard facilities with low-cost abatement opportunities take those up – both to meet their own baselines and to earn SMCs, which they can sell to others. Facilities with higher-cost abatement opportunities can meet their baselines by purchasing credits from others. This ensures the largest emitting industrial facilities contribute to national emissions reductions, while recognising that many need time to develop cost-effective abatement options. Similarly, businesses across the economy that can generate low-cost abatement through ACCU projects have an incentive to take those opportunities up, so they can sell the ACCUs to Safeguard facilities.

In this way, the Safeguard Mechanism encourages all covered facilities to invest in cost-effective abatement on-site, stimulates further abatement in other sectors, and achieves the overall emission reduction goal at least-cost.

Under the ACCU Scheme, every credit must be backed by real and measurable abatement, and methods must meet the legislated Offset Integrity Standards:

- **Additionality** – any carbon abatement that is credited would be unlikely to occur in the ordinary course of events.
- **Measurable and verifiable** – the removal, reduction of greenhouse gases should be measurable and capable of being verified.
- **Eligible carbon abatement** – abatement should be able to be used to meet Australia's international mitigation obligations.
- **Evidence-based** – the approach to crediting should be supported by clear and credible evidence.
- **Project emissions** – material greenhouse gas emissions emitted as a direct result of the project should be deducted.
- **Conservative** – when an estimate, projection or assumption is made it should be conservative.

The ACCU Scheme also has existing controls to guard against adverse environmental, economic or social impacts. Eligibility requirements for projects include:

- obtaining eligible interest holder consents before ACCUs can be issued
- exclusion of certain types of offset projects due to likely adverse environmental and social impacts
- consistency with natural resource management plans
- obtaining regulatory approvals under all state, territory and national laws relating to land use and development, the environment and water.

Methods address specific environmental, economic and social risks, and the relevant minister must consider any adverse impacts that could arise from projects before making a method.

The Australian Government has established high-integrity measurement, reporting and verification protocols through the National Greenhouse and Energy Reporting (NGER) Scheme, which underpin reporting by Safeguard Mechanism facilities and calculation of SMCs. The NGER Scheme is subject to continuous improvement and periodic review by the Climate Change Authority.

9.2.2 Voluntary carbon market reforms

The Australian Government's Climate Active program provides an incentive for Australian businesses to voluntarily participate in a high-integrity voluntary carbon market. Climate Active certification is awarded to businesses and organisations that have credibly reached a state of carbon neutrality.

Established in 2010 as the National Carbon Offset Standard, and updated to Climate Active in 2019, the program provides principles for voluntary engagement with carbon markets. It has facilitated the use of more than 54.8 million carbon credits, including more than 3.3 million ACCUs and 51.4 million international carbon credits.[7]

Climate Active is currently under review and a decision about the future direction of the program has not yet been made. The government understands the need for certainty on Climate Active reforms and is carefully considering the role of the program alongside the changing policy landscape and community expectations around voluntary action, including how it interacts with Australia's new mandatory climate-related financial disclosures framework.

9.3 Future directions for Australia's carbon markets

Carbon markets are part of a portfolio of measures that will help Australia achieve net zero emissions by 2050. Carbon markets work alongside other key policies including risk-sharing arrangements like the Capacity Investment Scheme, sector-specific regulations like new vehicle and appliance efficiency standards, and research and industry development programs. These policies overcome a range of barriers to emissions reduction action that go beyond cost. The Australian Government will not introduce an economy-wide price on carbon and will instead maintain a suite of measures to drive emissions reductions in ways that strengthen our economic productivity, community and environmental outcomes.

Throughout the transition to net zero, the Australian Government will work with suppliers, purchasers, communities, trading partners and independent experts to sustain effective carbon markets that benefit communities, industries and the natural environment.

9.3.1 Continuous improvement in the ACCU Scheme

Demand for ACCUs is expected to increase over time, to support participants in compliance and voluntary markets to achieve their emissions reduction goals. The Australian Government is considering its future role as a direct purchaser of abatement, in light of the Safeguard reforms and the evolving role of the ACCU scheme.

Supply is currently strong. Around 19 million ACCUs were issued in 2024; this is projected to grow to 31 million in 2035.[8] Australia's Emissions Projections 2024 estimate the supply of new ACCUs, alongside existing holdings within the market, will be sufficient to meet projected demand out to 2035.[9]

The Australian Government will continue to improve the ACCU scheme so it contributes to Australia's net zero transition through:

1. Improving scheme governance, reinforcing integrity and transparency

Recent reviews by the Climate Change Authority (CCA), independent experts, and the Australian National Audit Office, have consistently found the ACCU Scheme is well designed, well administered, and contributing to Australia's transition to net zero.[10]

The Australian Government strengthened governance through legislative reforms in 2023, including to appoint a full-time chair to the Emissions Reduction Assurance Committee, bolster the independence of scheme administration and require increased audits for some projects. The government will continue to enhance transparency and integrity by increasing the amount of project information published by the CER, and requiring up-front consent from Native Title holders at project registration.

2. Bringing forward high-integrity supply

The government is increasing opportunities to generate high-integrity ACCUs from a diversity of activities. A new method has been developed to incentivise abatement at landfill facilities; this is on track to be finalised by the end of 2025. New methods to recognise carbon abatement from managed burning of savanna landscapes in northern Australia, and from managing agricultural land to store more carbon, are under development. The government is also investing in the Carbon Farming Outreach Program to support farmers and land managers to make informed decisions about participating in carbon markets (see Chapter 14).

To expand opportunities under the scheme, and foster innovation, the government introduced a proponent-led process to develop methods in 2024. This enables businesses, industry groups, researchers and others to propose new emissions reduction methods. The public register of proposals provides visibility and can help drive early support for technologies. Four proposals were prioritised in 2024, and method development is underway.

The scope of eligible activities under the scheme will change as the broader climate change policy framework evolves. For example, activities at Safeguard facilities are no longer eligible to create ACCUs for covered emissions, and multiple energy efficiency methods have been retired over the last few years because other policies have been developed that better support those activities.

3. Facilitating interoperability with the Nature Repair Market

The Nature Repair Market is incentivising biodiversity outcomes together with carbon abatement. The Nature Repair Market has been designed to align with the ACCU Scheme, with both schemes administered by the Clean Energy Regulator. Registrations for projects under the first Nature Repair Market method opened in March 2025, with the first project registered in August 2025. Under this method, eligible participants can design a project to earn both a tradeable biodiversity certificate and ACCUs where they meet relevant method requirements. The government will continue to consider opportunities for alignment as the Nature Repair Market scheme develops.

4. Strengthening synergies between carbon removals and other land uses

There are opportunities to store carbon in the land in ways that are consistent or complementary with other land uses, including agriculture. Activities such as regenerative agriculture, silvopastures, shelterbelts, and riparian plantings integrate carbon storage into farming practices. These can enhance agricultural productivity by improving the richness of soil and protecting crops, land and livestock from the elements.

Landholders can leverage carbon markets to deliver abatement outcomes and optimise use of their land. The government has heard stakeholder concerns about the risks of large-scale carbon farming compromising productive land, and potential impacts on local communities. Appropriate planning and co-ordination is needed to minimise transition risks and find a suitable balance between different land uses. Further analysis building on the work done to date will be important to help understand the nature of changes and impacts on communities, and inform responses. Chapter 14 and the Agriculture and Land Sector Plan explore this topic further.

The Climate Change Authority advised:

> 'Tree plantings that help meet the 2035 target could be established across a variety of land types, including marginal farmland, without compromising agricultural production or food security. Diversifying land use and developing new business activities that sequester carbon can give land managers and farmers new opportunities and income streams on their land.'
>
> 2035 Targets Advice, page 53

9.3.2 The Safeguard Mechanism

The Safeguard Mechanism is flexible and scalable. Its settings are calibrated to Australia's national emission reduction targets of 43% below 2005 levels by 2030 and net zero by 2050. To 2030, baselines for most facilities decline by 4.9% per year. The Safeguard Mechanism also sets strong baselines setting for new entrants, which helps ensure Australia's emissions trajectory is robust to changes in demand for our commodities, whether that be in energy commodities or new demand for critical minerals.

The government will conduct a review of the Safeguard Mechanism in 2026-27. This will consider:

- the emissions baseline decline rate from 2030 onwards
- the coverage arrangements, taking into account any competitive issues, abatement potential and regulatory compliance
- whether international units should be considered
- the use of SMCs (noting these credits provide a significant incentive for investment in onsite abatement) and offsets beyond 2030 (incorporating advice from the Climate Change Authority on the extent to which on-site abatement is being driven by the reforms, and whether any additional incentives are required)
- the treatment of flexibility mechanisms beyond 2030
- the suitability of arrangements for emissions-intensive, trade-exposed activities
- a range of other matters.[†]

9.3.3 International carbon trading

Australia recognises that high-integrity international carbon markets can help achieve global emissions reductions targets. The Paris Agreement allows for **Internationally Traded Mitigation Outcomes** (ITMOs) to be exchanged between parties. This enables crucial finance to be accessed by countries that need it while supporting strong social and environmental outcomes, and can help countries achieve higher ambition targets.

Australia supports robust, high-integrity international carbon markets. The Australian Government worked alongside other countries to establish the framework for trading ITMOs through the Paris Agreement and provides capacity building within the Indo-Pacific. The Australian Government does not currently allow ITMOs to be used towards our national emissions reduction targets or for compliance purposes. Our focus is firmly on enabling our industries to reduce emissions domestically as this places them in the best position to capture the economic benefits of the transition to net zero.

Regardless of how Australia chooses to engage with international markets, Australia will continue to collaborate internationally to help build capacity for countries to participate in international cooperative approaches and increase their contributions to global emissions reduction.

The Climate Change Authority advised:

> 'Australia should not need to use international offsets to meet the 62–70% target by 2035.'
>
> 2035 Targets Advice, page 91

[†] *A list of matters to be considered by the 2026–27 Review into the Safeguard Mechanism is contained in Attachment B to the Explanatory Statement to the Safeguard Mechanism Reforms Rules 2023*
Source: Federal Register of Legislation, Explanatory statement: National Greenhouse and Energy Reporting (Safeguard Mechanism) Amendment (Reforms) Rules 2023, Government of Australia, Canberra, August 2023

10. Attracting investment to achieve net zero

Key messages

- A clear and credible pathway to net zero provides certainty to investors which helps to attract investment.
- The Australian Government is investing strategically to de-risk and incentivise private capital, including foreign investment.
- Australia's **Sustainable Finance Roadmap** provides a pathway for mobilising the private capital required to achieve net zero, modernising our financial markets and maximising the economic opportunities associated with energy, climate and sustainability goals.
- Strong trading arrangements with partner countries will help attract investment in clean energy industries and improve access to technologies and inputs required for the transition.

The Australian Government is investing in our net zero future. However, government alone cannot finance the transition to net zero; private investment at all scales, from households and small businesses to institutional funds, is also required.

This chapter discusses the government's role in supporting private sector investment in deployment, infrastructure and equipment to deliver the transition.

10.1 Attracting domestic and foreign investment

The Climate Change Authority advised:

> '…there is a global reorientation in trade and investment underway as governments, regulators, and markets around the world transition to net zero emissions and Australia needs to adapt to these changes or risk the economic opportunities flowing to other countries.'
>
> Sector Pathways Review 2024, page 192

Global capital flows are already shifting. Investors, both in Australia and overseas, are looking for long-term value that also serves to reduce global emissions. The International Energy Agency's annual World Energy Investment report has found that annual clean energy investments are set to rise to over US$2 trillion in 2025, double investment in fossil fuels.[11] The IEA reports the scale of global investment must increase further to keep temperature rises to within 1.5°C, including:

- doubling annual investment in renewables, grids and batteries
- tripling annual investment in transport, industry and buildings.

This creates opportunity for Australia.

The Sustainable Finance Roadmap helps to mobilise the significant private capital required to support net zero. The roadmap includes 3 pillars to strengthen the financial system and facilitate investment in the transition:

1. *Improve transparency on climate and sustainability* to help guide capital to net zero-aligned investments and build public confidence in the integrity of the financial system as a contributor to the transition. This includes holding businesses to account for greenwashing, such as through enforcement action by corporate regulators, and setting benchmarks through the Sustainable Finance Taxonomy.
2. *Financial system capabilities*, to strengthen Australia's position as an attractive destination for green capital by ensuring fit for purpose regulatory regimes.
3. *Australian Government leadership and engagement*, including issuing sovereign green bonds and promoting interoperable frameworks.

The Australian Trade and Investment Commission (Austrade) works with foreign investors to identify, attract and facilitate investment projects aligned to government priorities, such as Australia's net zero transformation. This work includes promoting Australia as a welcoming destination for investment, capitalising on the country's hard-earned reputation for:

- a safe and profitable investment destination
- strong environmental, social and governance (ESG) credentials
- cohesive action on climate across levels of government.

Since mid-2022, Austrade has facilitated over $15 billion of foreign investment across nearly 200 projects to support Australia's net zero transformation – delivering almost 22,000 jobs.

By applying robust review processes to foreign investment, Australia can enjoy the economic growth that comes from this capital, while maintaining our national security (Box 10.1).

10.2 Government is investing to crowd-in capital

The Government is working with the private sector to drive investment. While most of the investment will come from the private sector, the Government is providing targeted investment to multiply impact beyond what public finance can achieve alone.

Established in 2012, the Clean Energy Finance Corporation (CEFC) is the world's largest green bank, offering concessional loans to help attract private investment. Since its inception, the CEFC's loans have been instrumental in shoring up support for projects and investments that might not have otherwise attracted conventional finance. This has operated at all scales, from grid-scale renewable electricity, to concessional loans to households purchasing electric vehicles. The CEFC is also investing in a range of decarbonisation opportunities in other sectors, including agriculture, low-carbon liquid fuels and property.

The CEFC has delivered a triple benefit to the Australian public, by:

- accelerating the transition by proving the potential of various technologies, including a central role in establishing solar and battery storage
- increasing activity that has contributed to wages and economic growth
- earning a return on investment for the Australian taxpayer.

Over its history, the CEFC has attracted $3 of private funding for every $1 of public investment.[12]

At the start of 2025 the Government added $2 billion to the CEFC's general funding, allowing it to sustain its crucial investments in clean energy technologies. The Government is updating the CEFC's investment mandate to include a new focus on the rapid roll out of renewable projects to drive down electricity prices, and committing up to $2 billion more to the CEFC General Account, to be drawn down in line these changes.

The National Reconstruction Fund Corporation (NRF) provides debt, equity and guarantees to projects in priority areas of the Australian economy, including renewables and low-emission technologies.

The Net Zero Fund will be a new $5 billion sub-fund of the NRF to invest in decarbonisation of large industrial firms, including through capital expenditure to reduce emissions; and manufacturing renewable and low emissions technologies. The Net Zero Fund will drive decarbonisation and modernise industrial processes. The funds will be drawn from existing NRF capital and will be a refocusing of the NRF's priorities.

The Regional Investment Corporation (RIC) is another national investment vehicle funded by the Australian Government. The RIC specialises in low-interest loans for farm businesses and farm-related small businesses. In August 2025, the government announced an additional $1 billion in new loan funding to the RIC to expand support for the growth, resilience and sustainability of Australia's agricultural sector. The government will also broaden RIC's loan scope to include assistance for improving climate resilience, boosting sector productivity and supporting agriculture to be part of Australia's net zero transition.

Other financial instruments and special investment vehicles also crowd-in private investment and support decarbonisation:

- The Capacity Investment Scheme, which underwrites private investment in renewable electricity generation and storage.
- Production tax incentives for critical minerals processing and renewable hydrogen to attract investment under Future Made in Australia.

The Australian Government has opened the Investor Front Door, with a pilot beginning in September 2025. The Investor Front Door is designed to streamline how investors and business interact with the government, helping support nationally significant projects navigate approvals processes and identify suitable government financing opportunities.

The Australian Government is also targeting capital to specific regions to help deliver a fair and equitable transition. The Net Zero Economy Authority is acting as a catalyst for investment and major project development in the regions most affected by the transition to net zero – the Hunter (NSW), Latrobe (VIC), Collie (WA) and Central Queensland. The NZEA's work is fostering job creation and actively supporting the transition by facilitating public and private sector participation and investment in transformational net zero projects, including working with established investment funds.

10.3 Investing to build resilience and secure supply chains

The Climate Change Authority advised:

> 'A heavy reliance on importing transition technologies from overseas means it will be essential for governments to work with industry and international partners to establish supply chains resilient to global economic, climate and geopolitical disruptions. This cannot be achieved by onshoring transition technology manufacturing in Australia alone.'

Sector Pathways Review 2024, page 195

The net zero transition can build national resilience to future risks and shocks by strengthening domestic capabilities and supply chains, especially where Australia has a comparative advantage in a low-emissions world. By strategically guiding private investment to industries that will reposition Australia upstream in supply chains, the government is reducing exposure to international disruptions and improving our sovereign capability.

For example, Australia has historically depended heavily on imports of petrol, diesel and aviation fuel, with only 13% of the petroleum feedstocks for Australian refineries coming from local sources.[13] To build a supply chain for Australian low carbon liquid fuels, the Australian Government will invest $1.1 billion in a new Cleaner Fuels Program. This will help stimulate private investment in Australia's first onshore low carbon liquid fuel refineries, backing local innovators, making fuel supply more resilient and bridging the price gap for early adopters. The Government will engage with industry on how to make sure Australian liquid fuel users have a fair chance to capture the emissions reduction potential unlocked by low emission Australian fuels. This will reduce reliance on imported fuels and unlock new export opportunities over time.

Other Future Made in Australia priorities include batteries and solar PV. Australia's National Battery Strategy outlines how Australia will build a diverse and competitive Australian battery industry that will improve Australia's supply chain resilience and economic security. It includes the $500 million Battery Breakthrough Initiative, delivered by ARENA, to promote the development of battery manufacturing capabilities in Australia. ARENA is also delivering the $1 billion Solar Sunshot program, supporting commercialisation of Australian innovations and scaling-up domestic solar PV manufacturing. This will improve supply chain security for a technology at the centre of the clean energy transition.

Box 10.1 Managing national security risks through the transition

Attracting foreign investment, strong trade relationships and robust supply chains are integral to Australia's transition. However, these arrangements can give rise to national security risks, which risk undermining confidence in the transition.

Australia must also manage cybersecurity risks for connected devices we are using to reduce emissions. Smart energy management devices, heat pumps, batteries and electric vehicles produce valuable yet sensitive data. This data helps reduce costs for consumers but raises risks, especially if the vendor of these technologies is owned, controlled or influenced by foreign governments with interests or values that conflict with Australia's. The 2023–2030 Australian Cyber Security Strategy seeks to address these types of risks while stimulating investment and providing clarity for industry, including in reducing emissions.

10.4 Trade relationships and settings are critical for investment

For decades, Australia has relied on international trade for prosperity.

As trading partners implement their net zero commitments, Australia's fossil fuel exporters are projected to experience declines in demand.[14] Treasury's modelling report notes that, should forecasts by the International Energy Agency be realised, Australian coal production could decrease by at least 71% to 2050 and Australian gas and LNG production could decline by at least 66% by 2050. In contrast, global demand for the commodities needed for the net zero transition such as critical minerals like lithium and nickel are projected to grow, alongside new growth sectors such as green ammonia and green metals.

Australia's comparative advantages in renewable energy and critical minerals can be combined with our strong trading partnerships, fair and competitive markets, open trade and investment and proximity to key markets in Asia to grow the value of our exports. In addition to the investment and jobs benefits, by displacing higher emissions production elsewhere, Australian exports could underpin emissions reductions beyond our borders.

Treasury considered how Australian production and export of green iron, green ammonia and lithium could contribute to global abatement, estimating Australia's production of these products could contribute 466 Mt CO_2-e to global decarbonisation in 2050. This is equivalent to 1.2% of global emissions and more than Australia's net emissions in 2024. This allows Australia to make a significant additional contribution to global efforts – beyond the decarbonisation of our own economy.

The Climate Change Authority advised:

> 'Australia can boost its contribution to the global goals of the Paris Agreement - over and above meeting a strong domestic emissions reduction target - by partnering with trading partners to decarbonise their energy systems and supply chains.'

2035 Targets Advice, page 10

Targeted partnerships are helping Australia position itself for success in global clean energy industries and markets. For example, the China-Australia Steel Decarbonisation Dialogue has been established to bring together the world's largest steel producer, China, and the world's largest iron exporter, Australia, to progress a sustainable steel sector. Australia currently exports over $100 billion a year of iron ore to China.[15]

Australia also has a range of bilateral agreements with some of our largest trade and investment partners to support scaling-up low-carbon technologies and collaboration on research and development; including with India, Germany, Singapore, Japan, the Republic of Korea, China, the Netherlands, and the United Kingdom.

These partnerships build on Australia's Free Trade Agreements, which add significant value across the Australian economy through access for our exports to important markets.

In addition, Australia engages in important multilateral groupings like the Climate Club and G20, which support the development of policies, approaches and standards on trade and clean energy.

Australia is driving coordinated international approaches to certify low emissions products that will facilitate trade, building on our Guarantee of Origin (GO) scheme. The scheme, commencing in late 2025, is a voluntary framework for emissions accounting of products and certification of renewable electricity. It supports the government's Future Made in Australia plan and underpins eligibility for government initiatives such as the Hydrogen Production Tax Incentive.

Australia has played a lead role in the International Partnership for Hydrogen and Fuel Cells in the Economy, the most advanced multilateral government forum considering a global approach for hydrogen certification. Through this cooperation, the Australian Government contributed to the development of hydrogen emissions accounting methodologies, which are now being given effect through the GO scheme.

Governments around the world are increasingly seeking to regulate trade in certain goods on the basis of their embodied carbon. The EU and UK are both developing border carbon adjustments (BCAs) to ensure that imported goods face similar carbon costs as domestic products, helping prevent loss of industries abroad and encouraging cleaner industrial production globally.

When fully implemented, these BCAs will apply to aluminium, cement, fertilisers, hydrogen, iron and steel. Importers will need to have a liability corresponding to the carbon emissions embedded in their imported goods, accounting for any emissions liabilities paid overseas. Thailand has also announced that it will implement an emissions trading scheme, accompanied by a border carbon adjustment.

Australia's climate policies already have strong measures to address the risk of carbon leakage to maintain the strength of Australian industries and ensure a level playing field through the transition. Australia has been considering how best to continue this over time (Box 10.2).

Box 10.2. Maintaining Australia's competitive advantages through addressing risks of carbon leakage

Carbon leakage occurs when companies, faced with emissions reduction requirements domestically, move production to overseas jurisdictions without such requirements. When differences in policy impact are large enough, local industry might 'leak' offshore and continue their activities beyond the reach of effective climate policy. This creates costs (loss of investment and industry) without global emissions reduction benefits.

Australia's Carbon Leakage Review was led by Professor Frank Jotzo and undertaken between July 2023 and March 2025. The review assessed carbon leakage risks and found existing policy measures, such as access to concessional Safeguard baseline decline rates and public co-investment, mitigate leakage risks in the short to medium term. However, for some sectors, the review considered settings may need to be augmented with additional measures over time.

The review examined whether further policy measures in the medium to longer term would further support a level playing field by ensuring domestic and imported goods face the same emission reduction obligations in the Australian market. The review recommended that a BCA be introduced for a select group of commodities that are at particular risk of carbon leakage from imports, with it initially covering cement and clinker, and to be considered for other commodities subject to further assessment. The review also noted consequential changes to the Safeguard Mechanism should be considered in any decision to implement a BCA.

The Australian Government will release the report from the review to continue discussions on its recommendations with impacted industries and will give further consideration to the issues and whether to implement a BCA in the 2026–27 review of the Safeguard Mechanism.

The review also recommended the government continue to actively engage in multilateral and plurilateral initiatives that could support the implementation of BCAs; such as through the development of interoperable standards and approaches to default emissions intensities or measurement of embedded emissions. The government will continue to engage in international forums such as the Climate Club, the IEA, the OECD's inclusive Forum on Carbon Mitigation Approaches, and APEC, to support interoperable approaches for implementation of domestic climate policies and help unlock the export potential of low-emission commodities.

11. Working in the net zero transition

Key messages

- A highly skilled and diverse workforce will be needed to underpin Australia's net zero transition. This requires ongoing training and investment.
- Supporting diverse workforce participation, especially building opportunities for women, will be essential for delivering the transition.
- Growth of new clean energy industries will create employment opportunities for Australians.

Australia's transition to net zero is an opportunity to build a more resilient, inclusive, and competitive economy.

This chapter outlines how government and business can build the skilled workforce needed for a successful transition.

11.1 Training and education are key

The Climate Change Authority advised:

> 'Australia's education system must be prepared for the new industries and skills required for the transition.'
>
> Sector Pathways Review 2024, page 187

Many occupations needed for the transition are already experiencing skills shortages. Ongoing upskilling, training and investment in our workers will be essential to enable broad workforce shifts to growing clean energy industries.

Jobs and Skills Australia (JSA) identified in its report, The Clean Energy Generation, that there are 38 critical occupations where demand for clean energy work is likely to increase by around 15% to 2030 – an increase of almost 240,000 workers based on the central scenario – to meet the government's target of 82% renewable electricity generation by 2030. The report found that the biggest worker shortages will be for electricians, with an additional 85,000 expected to be needed by 2050, 27% more than the currently projected supply.[16]

Treasury modelling indicates that if Australia realises its ambitions as an exporter of clean energy embodied products, this would create new employment opportunities. Occupations projected to be increasingly in demand include automotive and engineering trades workers, and machinery and stationary plant operators as a result of larger clean energy industries.

Infrastructure Australia's Delivering Net Zero Infrastructure: Workforce Report notes multiple sectors across the economy will need to draw upon the same pool of construction workers to continue operations while delivering their net zero targets. Coordinating efforts on overlapping workforce issues, such as in infrastructure and housing construction, will be needed to manage any potential cross-sector competition while continuing to strengthen the workforce with the right capabilities.

Australia will also need more university-qualified professionals for the transition. This will include engineers and project managers to plan new infrastructure, scientists to innovate new climate solutions and continue refining our understanding of climate systems, and sociologists to support the public to engage with the energy transition and have their say in how it should progress.

In recognition of this need, the Australian Government is targeting a tertiary qualification attainment rate of at least 80% by 2050, up from 60% today, covering both vocational education and training (VET) and university qualifications.

The Climate Change Authority advised:

> 'Strategic investment in skills and training can assist workers to transition into emerging clean energy and manufacturing industries, while helping to address capability gaps that would otherwise hold back growth.'
>
> 2035 Targets Advice, page 70

The long lead time of apprenticeships, degrees and other training pathways – often at least 3–4 years – means that targeted initiatives over the next few years will be crucial in building the workforce needed. The Australian Government, with states and territories, has prioritised 'supporting the net zero transformation' under the National Skills Agreement. The Australian Government is supporting greater participation in growing sectors by prioritising skills, developing stronger links between industries, and building awareness of opportunities. Key initiatives include:

- Fee-free TAFE, TAFE Centres of Excellence and the Key Apprenticeship Program, which are supporting Australians to take up opportunities in the net zero transition, including underrepresented cohorts such as women and First Nations people.
- National licensing for electrical trades to enable them to work seamlessly across states and territories without requiring separate licensing.
- A national network of 10 Jobs and Skills Councils (JSCs) to work with industry and the VET sector, to ensure training addresses existing and emerging skills needs to build the clean energy workforce.
- The Future Made in Australia agenda prioritises safe and secure jobs, and developing skilled and inclusive workforces, under its Community Benefit Principles. The government will consider these principles when weighing up options to support new industries.

11.2 Supporting regional workers and communities to seize net zero economy opportunities

The Climate Change Authority advised:

> 'New and growing industries can create economic opportunities for affected workers and regional communities, with support from governments including for re-training and upskilling of workers and the provision of public infrastructure.'
>
> Sector Pathways Review 2024, page 116

The benefits of the transition will not necessarily be evenly distributed. As Australia decarbonises, new industries are emerging while emissions-intensive industries in mining, manufacturing and transport undergo rapid change. As some roles disappear, others will emerge. Building on the existing skills of the energy industry workforce, this shift will require retraining workers to participate in and drive clean-industry growth. Many workers will enter new occupations in construction, electrical trades and advanced manufacturing.

The composition of occupations across industries and locations will change. Around 1.1% of the Australian workforce is employed in sectors directly exposed to the net zero transition, and an additional 4% of the workforce are employed in emissions-intensive sectors.[17] Where this employment tends to be concentrated in particular regions like the Hunter (NSW), Latrobe (Vic), Collie (WA) and Central Queensland, the move away from emissions-intensive industries will affect not just jobs, but local economies and community identity.

These communities are resilient, but they need to be supported – with clear plans, targeted investment, and a say in shaping their own future. The Australian Government is rolling out 3 key initiatives to support regions through the transition:

- Regional Workforce Transition Plans will offer tailored, place-based supports and services for workers, families and communities for regions expected to be heavily impacted by the transition.
- The Energy Industry Jobs Plan will help workers in coal- and gas-fired power stations and across relevant supply chains, move to new jobs as those stations close. Employers across the supply chain will help workers to prepare, including with career counselling, financial advice and paid time off for training in formal qualifications or short courses. The Net Zero Economy Authority oversees this program in its priority regions.
- Transitioning Workforce Fund will deliver tailored solutions to address barriers to transition for workers, communities, businesses and unions. By building community capability to overcome the specific barriers that individual communities face, they will experience a more orderly transition, even as employment and economic conditions change on the road to net zero.

The Australian Government will work closely with local communities in transitioning regions to establish consultative mechanisms, including through the work of the Net Zero Economy Authority and regional connections. This is discussed further in Chapter 14.

11.3 Equitable access to opportunities and diversity will strengthen Australia's workforce

The Climate Change Authority advised:

> 'Diversifying workforces can increase participation of under-represented groups and represents one of few ways to address the acute workforce shortages being experienced by transition industries now.'
>
> Sector Pathways Review 2024, page 186

Government and business must work together to maximise opportunity for all workers, especially where there has been inadequate workforce inclusion to date. This includes women, First Nations people, people with a disability, skilled migrants, and culturally and linguistically diverse communities.

Women face considerable barriers to participating in industries critical to the net zero transition, such as manufacturing, mining, construction and engineering. In construction and mining, women make up only 13% and 21% of the workforce respectively.[18] In gender-segregated sectors, women can face discriminatory or unsafe workplaces, sexual harassment, lack of suitable amenities, and limited flexible work opportunities. Most of the women employed are in sales or administration roles rather than on a worksite, contributing to an average gender pay gap of 25.3% and 19.8% between men and women in these industries.[19]

The Australian Government is supporting women's safe and equitable participation by working to prevent workplace sexual harassment and sex discrimination, improve women's access to safe and inclusive study, training and work opportunities in male-dominated industries, and accelerate meaningful progress towards gender equality in Australia. This includes through initiatives such as:

- Building Women's Careers Program
- Introducing positive duty into the *Sex Discrimination Act 1984*
- *Working for Women: A Strategy for Gender Equality* to guide the government's ongoing commitment to women's participation in the energy transition, leadership in climate policy, and centering First Nations women and girls in policy development.

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Zero

4

Working together

The transition to net zero is bigger than any one individual, community, business or government can tackle alone. Everybody has a role to play.

The transition offers major opportunities, including jobs in clean energy industries, regional development and greater collaboration with First Nations Australians. However, some communities will be particularly affected by the challenges the transition will bring. Government is focused on ensuring that Australians share in the benefits and are supported through the challenges.

Chapter 12

Discusses the roles of governments, the private sector, academia and research institutions, and communities, and how we are working with international partners.

Chapter 13

Outlines how First Nations people's connection to Country and culture is fundamental to climate action in Australia. It sets out how First Nations leadership is creating opportunities to reduce emissions and ensure benefits flow to First Nations communities.

Chapter 14

Outlines how government will work with and support communities and regions through the transition.

12. Roles and responsibilities

Key messages

- The Australian Government is working with all levels of government to provide the right policies and regulatory settings for net zero.
- The private sector is investing to decarbonise, prove and scale-up new technologies, and capitalise on new markets.
- Australia's universities and research organisations are leading the world in the development of new technologies.
- Coordination mechanisms like the Energy and Climate Change Ministerial Council, international forums and partnerships are helping to align efforts, share information and maximise benefits.

12.1 All governments are working towards net zero

State, territory and local governments are vital partners with the Australian Government in achieving our collective net zero ambition.

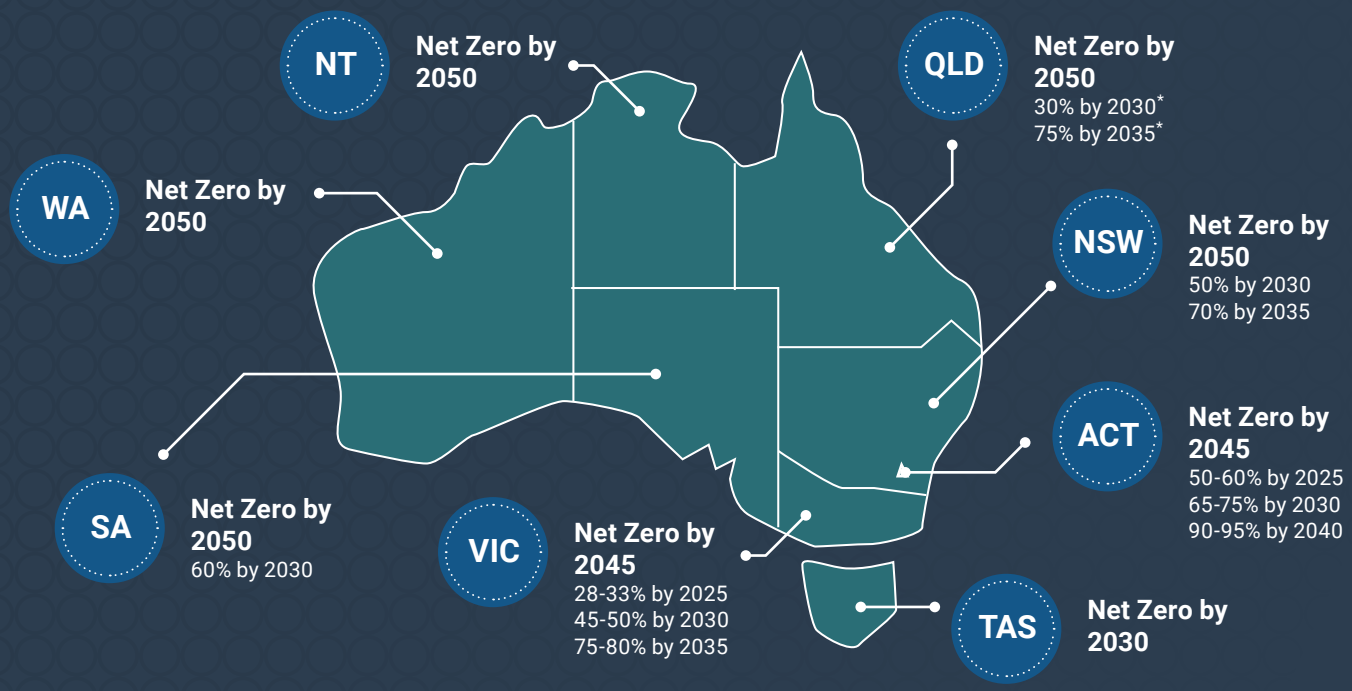
Over the last decade, states and territories have led the way. They have set interim and long-term emission reduction targets, supported by policies and targeted investment, to guide the transition in ways best suited to their jurisdiction (Figure 12.1). Our emissions reduction pathway will continue to be shaped by the efforts of states and territories.

States and territories are also partners in implementing major national initiatives, including investing in Community Solar Banks and the Social Housing Energy Performance Initiative to support electrification, reduce energy costs, build resilience and increase participation. They are delivering major infrastructure projects that will transform and decarbonise our energy and transport systems, such as Marinus Link, connecting the electricity network between the mainland and Tasmania, and the Sydney Metro Network.

Local governments lead and support community efforts to reduce emissions, as well as adapt to climate impacts. They play a central role through land-use planning, delivery of local transport, waste and recycling services, and management of municipal buildings and infrastructure – directly reducing emissions and building community capacity.

Local governments are on the front lines of climate impacts in communities. The Australian Local Government Association has published Adapting Together: Local Government Leadership in a Changing Climate, which outlines examples of the actions local governments can take to build resilience, and the economic benefits from local government action. The best outcomes will come from all levels of government working collaboratively to prepare for climate impacts and respond to challenges when they arise.

Figure 12.1 State and Territory Emissions Reductions Targets



ACT

The *ACT Climate Change Strategy 2019–2025* outlines steps being taken to build resilience to climate change impacts and meet the ACT's emission reduction targets, including net zero by 2045. While a new Strategy is currently under development, the separate *Integrated Energy Plan 2024–2030* is providing long-term guidance for the ACT's energy system transition. The Plan advances regulatory and policy settings that enable ACT households and businesses to invest and benefit from electrification.

NSW

NSW is developing a new *Net Zero Plan* to 2035 to chart a path to meet its legislated 2030 and 2035 emissions reduction targets and lay the foundation to be net zero by 2050. The new *Net Zero Plan* will reflect commitments to reduce emissions across the entire economy and will complement the *NSW EPA's Climate Change Policy and Action Plan*, which sets out a comprehensive program of increasing regulatory requirements to reduce emissions at facilities within the EPA's remit.

NT

The Northern Territory has been guided by the *Climate Change Response: Towards 2050* and associated *Three Year Action Plan* which outlined a strategy and actions for a pathway to net zero, while building climate resilience and unlocking economic opportunities in a low carbon future. The Northern Territory is developing a new policy position that aligns with its commitment to rebuild the Territory economy.

QLD

The Queensland Government has committed to net zero emissions by 2050 and working with industry sectors to develop plans to reduce emissions. Queensland will deliver an *Energy Roadmap* by the end of 2025. A net zero roadmap and emissions reduction plans for other critical sectors of the economy – industry, transport, land and agriculture, built environment, and resources – will be published in 2026. The net zero roadmap will also outline Queensland's adaptation priorities to ensure industries and communities are resilient.

SA

South Australia's *Net Zero Strategy 2024–2030* outlines the government's objectives, policy priorities and actions to reduce greenhouse emissions by at least 60% by 2030 and drive progress towards net zero emissions by 2050. The strategy aims to reduce greenhouse emissions across the economy while creating new jobs, developing new industries, supporting wellbeing, and enabling decarbonisation beyond state borders.

TAS

Tasmania's *Emissions Reduction and Resilience Roadmap 2024–29* connects the State's six sectoral Emissions Reduction and Resilience Plans and *Risk Assessment for Climate Change 2024*. It sets out a pathway for emissions reductions and climate resilience through support for businesses and industries to address while maintaining the State's target of net zero emissions to 2030 and beyond.

VIC

The Victorian Government is preparing its *2026–30 Climate Change Strategy* and new sectoral emissions reduction pledges. The Strategy will set the direction for Victoria reducing emissions to net zero by 2045 and strengthening climate resilience. It will build on the *2021–25 Climate Change Strategy* that outlined the state's plan for climate action while advancing innovation, investing in new industries and creating Victorian jobs.

WA

The *Western Australian Climate Policy* (*2020*) outlines a strategic vision for a climate-resilient and low-carbon future, targeting net zero emissions by 2050 through stakeholder collaboration and investment in green jobs and industries, and regional development. The *Sectoral Emissions Reduction Strategy for Western Australia* (*2023*) builds on this, outlining initial actions across all sectors to support the state government's net zero target.

*Interim emissions reduction targets in the *Clean Economy Jobs Act 2024 (Qld)* are being reviewed

The Australian Government is partnering with local government. For example, the $100 million Community Energy Upgrades Fund supports energy upgrades at existing local government facilities, including replacing gas heating in council-owned swimming pools, replacing street lights with energy-efficient alternatives, and incorporating battery storage at sporting fields, libraries, and community centres. These initiatives are reducing local energy costs, increasing resilience, and reducing emissions.

Like the Australian Government, many state, territory and local governments have committed to reaching net zero in their own operations, showing what can be done using electric transport, building upgrades, and power purchase agreements (Box 12.1).

Box 12.1 A net zero Australian Public Service by 2030

In 2023, the Australian Government released the Net Zero in Government Operations Strategy, which outlines the government's commitment to reduce the Australian Public Service's emissions to net zero by 2030.

The strategy describes actions towards reducing emissions from Australian Government operations and transitioning to net zero in areas like property, energy, procurement, fleet and travel.

Key actions include:

- transitioning to renewable energy, facilitated through a whole-of-government coordinated procurement of electricity
- improving building energy efficiency and electrification
- transitioning the APS fleet to zero emission vehicles where appropriate.

Progress is being made. In the 2023-24 reporting period, 38% of electricity consumed was certified from renewable generation, and 72% of ordered passenger vehicles were low-emission vehicles.[1]

12.1.1 Cooperation through ministerial councils and meetings

The Climate Change Authority advised:

> ' Strategic coordination between governments remains essential, particularly where borders are shared, infrastructure is interconnected, or investment and approval decisions and social impacts span jurisdictions.'

2035 Targets Advice, page 61

Ministerial councils and meetings have a central role in supporting effective collaboration across different levels of government. They help overcome shared barriers and provide an opportunity to showcase best practice and align efforts. Ministerial councils shaping the net zero transition include:

- Energy and Climate Change Ministerial Council
- Council on Federal Financial Relations
- Infrastructure and Transport Ministers' Meeting
- Agriculture Ministers' Meeting
- Environment Ministers' Meeting
- Skills and Workforce Ministerial Council
- Building Ministers' Meeting
- Planning Ministers' Meeting.

The Energy and Climate Change Ministerial Council (ECMC) is a forum for the Commonwealth, Australian states and territories, and New Zealand to work together on key reforms in energy and climate change. In August 2025, ECMC agreed 6 strategic priorities for the coming year, while recognising each jurisdiction may pursue its own policies on energy transformation according to its unique needs and circumstances, working collaboratively to deliver the best outcomes at a national level. The ECMC's priorities are:

- Addressing barriers to affordable, high-quality, safe, reliable and secure supply of electricity and gas that is fair and prioritises the interests of consumers throughout the energy transformation, including by supporting consumer energy resources.
- Ensuring all Australians, including regional, remote and First Nations communities, are empowered and supported to benefit from the energy transformation.
- Delivering a coordinated, strategic and timely approach to transforming our energy systems to meet net zero, capturing the opportunities of new diverse energy technologies including onshore and offshore generation, storage and transmission, and ensuring the resilience of the sector in the face of the changing climate.
- Driving the efficient and effective achievement of Australia's emissions reduction commitments, including net zero by 2050, and promoting Australian industries and businesses to attract international investment and capitalise on the global transition.
- Delivering a coordinated and comprehensive approach to Australia's adaptation and resilience to climate change, in all sectors of the economy.
- Delivering a coordinated and strategic approach to achieving improvements in energy performance and flexibility across the Australian economy, including facilitating increased electrification of activities.

The ECMC is also investigating a National Climate Change Partnership, which would provide a framework for government collaboration on climate mitigation, adaptation and resilience, and ensure ECMC focuses on addressing the highest shared climate priorities.

The Infrastructure and Transport Ministers' Meeting is focused on how to decrease transport-related emissions across jurisdictions. In August 2025, Ministers agreed to develop a national decarbonisation policy framework for whole-of-life carbon for transport infrastructure projects. This framework, supported by a flexible approach to national implementation, will support carbon reduction across every phase, from early planning to operation and end-of-life.

12.2 Australia's private sector drives innovation and investment

Australia's private sector is at the forefront of innovation and investment in Australia's net zero transition.

- 94% of ASX50 companies have set a net zero commitment.[2]
- Australia's largest banks are transitioning their financing activities to align with net zero setting sector-specific policies, targets and transition plans for their emission intensive investments.[3]
- Australia's superannuation funds are also directly investing in initiatives and businesses that will reduce emissions and support climate action, while earning returns for shareholders and members.
- The Clean Energy Council estimates that investments in clean energy in Australia reached a record $12.7 billion in 2024.[4]

Australia's Sustainable Finance Roadmap provides a clear reform pathway to mobilise the private capital necessary to finance the net zero transition. The Sustainable Finance Taxonomy provides a common language for green and transition finance in Australia, supporting the allocation of capital towards activities that enable Australia's net zero ambitions.

Solar technology manufacturing, Newcastle, New South Wales, Australia.

12.3 Academia, universities and thought leaders

Innovation is critical for Australia to reach net zero (see Chapter 7). Australia's R&D ecosystem, academic institutions and thought leaders play an important role in developing the technologies, processes and practices we need to reach net zero. Partnerships between the researchers trialling new technology and the industries which can scale and deploy these solutions with people and communities across Australia are increasingly important.

Australia's research institutions, including universities and the CSIRO, as well as non-governmental organisations (NGOs) such as the Australian Conservation Foundation, the Climate Council, the Australian Council of Trade Unions (ACTU) and Australian Council of Social Service (ACOSS), are also advancing research and action to guide a fair and orderly transition.

12.4 Working with partners in the global net zero effort

Australia is working with international partners in global efforts to achieve net zero.

The Government is collaborating with key regional partners to unlock research, policy and investment in carbon management technologies, including transboundary CCS options. For example, Australia can support the decarbonisation of key regional and trading partners by safely and permanently storing captured CO2 emissions from those countries. Regional collaboration on transboundary CCS via the Regional Cooperation Initiative on Carbon Sequestration could generate the economies of scale needed to make carbon management technologies, such as CCS, a more accessible decarbonisation option for Australian industries and hard-to-abate sectors.

Australia is also partnering with countries in our region to act on climate change, transform their economies and increase their capacity to respond to climate impacts (Box 12.2).

Export Finance Australia (EFA) plays a key role in financing these initiatives. EFA is the Australian Government's export credit agency, providing loans, guarantees, bonds, insurance and equity to:

- support small and medium enterprises, larger companies and governments to realise Australia's export opportunities or contribute to export supply chains
- support Australia's economic resilience and security, and net zero transformation
- help finance sustainable infrastructure in the Indo-Pacific that has an Australian benefit.

On 5 December 2023 at COP28 in Dubai the Australian Government signed up to the Clean Energy Transition Partnership (CETP; also known as the Glasgow Statement). Through this, Australia committed to end new direct public financing for international unabated fossil fuel energy sector projects, except in limited and clearly defined circumstances. The government has amended the *Export Finance and Insurance Corporation (EFIC) Act*, so it now requires EFA to have regard to Australia's obligations under the Paris Agreement, our emissions reduction targets, and Australia's commitments under the CETP.

Box 12.2 Climate change in the Pacific

Many areas of the western Pacific, including Fiji, Samoa and New Caledonia, have experienced sea-level rises of 10 to 15 cm since 1993, nearly twice the global rate of change.[5] Sea surface temperatures have risen 3 times faster than the global average and marine heatwaves have doubled in frequency since 1980, significantly impacting ecosystems, economies, and livelihoods of our Pacific neighbours.[6] The Fijian government has identified 42 low-lying coastal villages for planned relocation due to inundation of homes and saltwater intrusion into arable land.[7]

Global action to reduce emissions is essential to protecting these islands, and the diverse peoples and cultures that call them home.

Australia is working with our Pacific partners to build capacity to adapt to these impacts and mitigate climate change. This includes working through the Pacific Islands Forum to implement the 2050 Strategy for the Blue Pacific Continent, including the Pacific owned, led and managed Pacific Resilience Facility. Through the Australian Infrastructure Financing Facility for the Pacific, Australia is also investing $350 million through the Pacific Climate Infrastructure Financing Partnership (PCIFP) to help the Pacific transition to renewable energy and fund critical climate adaptation works.

REnew Pacific is a key component of PCIFP. Over 5 years, this program is investing $75 million in off-grid renewable energy for Pacific and Timor-Leste communities, to support clean energy projects that improve health, education, agriculture, and communications. It offers grants and co-financing with NGOs, businesses, and governments to drive inclusive development. Launched at COP29, it builds on earlier partnerships to become the region's climate infrastructure partner of choice.

In 2025 Australia signed the world-first Australia-Tuvalu Falepili Union, in which Australia recognises Tuvalu's continuing statehood and sovereignty notwithstanding climate-related sea-level rise, commits to assist Tuvalu in response to major disasters, and supports mobility with dignity for the citizens of Tuvalu.

Australia is bidding to host the 31st Conference of the Parties (COP) in 2026 in partnership with the Pacific. The COP is the largest climate conference in the world. Hosting it would elevate Pacific voices in the global discussion – bringing global attention to the region's unique challenges and solutions, and accelerating global climate action and investment.

13. First Nations leadership in the transition

Key messages

- The First Nations Clean Energy Strategy is supporting economic opportunity and jobs for Aboriginal and Torres Strait Islander people as part of the clean energy transition.
- First Nations peoples' knowledge and connection to Country and culture can support emissions reduction and adaptation to climate change.

First Nations communities are crucial partners in the net zero transition. An estimated 70% of Australia's land and waters are owned, managed or co-managed by First Nations people and/or subject to other rights and interests including native title.[8] This underscores the central role First Nations communities must be afforded in managing the transition to net zero.

> First Nations communities are also experiencing the devastating effects of climate change on Country. First Nations-led solutions are needed to help adapt and improve resilience.

Working in genuine partnership with Traditional Custodians and First Nations communities is necessary to enable communities to shape and share in the economic benefits of the transition. For instance, First Nations peoples comprise just 1.9% of Australia's clean energy workforce, which presents an enormous opportunity for increased participation.[9] By empowering First Nations peoples to lead and participate in the net zero transition we can take meaningful steps to achieving the priority reforms of the National Agreement on Closing the Gap.

13.1 First Nations Clean Energy Strategy is a foundation for action

The First Nations Clean Energy Strategy 2024-2030 provides the foundation for climate action through the clean energy transition in partnership with First Nations peoples. It addresses the intersection between First Nations rights and interests and the clean energy transition to support First Nations peoples to lead and benefit from the transition wherever they live in Australia.

The First Nations Clean Energy Strategy prioritises collaboration, respect for cultural knowledge, and the development of clean energy projects that deliver social, economic, and environmental benefits to First Nations communities and the broader Australian community (Box 13.1). While the strategy was developed specifically for clean energy, the principles at the heart of the strategy are applicable across all sectors:

1. Aboriginal and Torres Strait Islanders, being the First Nations peoples of Australia, must be enabled to self-determine how they lead, participate in, and benefit from the clean energy transition.
2. First Nations peoples maintain their right to live on their land, with access to reliable and affordable clean energy.
3. First Nations peoples are stewards and custodians of Country, including the land, waters, skies and seas. This connection is ongoing and enduring.
4. Access to clean energy and a safe climate benefits all human and non-human life.
5. First Nations peoples' cultural heritage must be recognised, protected and celebrated throughout the clean energy transition.

Building genuine partnerships and collaboration is a shared responsibility. Government has a special duty of care to lead these efforts and ensure they are underpinned by robust and transparent data collection, monitoring and reporting. The First Nations Clean Energy and Climate Change Advisory Committee provides advice to the Minister for Climate Change and Energy on the Strategy, including design and implementation of its communication and engagement plan, and developing its themes, objectives and initiatives.

The government has allocated $70 million in funding for the First Nations Clean Energy Program (the Program) over 3 years starting in 2025-26. This includes:

- grants for First Nations peoples to access independent clean energy advice
- support to engage in clean energy project development
- access to clean energy information and resources
- policy development to increase access to finance.

An additional $4.6 million will enable continuation of the First Nations Clean Energy and Climate Change Advisory Committee for the lifespan of the Strategy to 2030.

This supports the government's continuing commitment to First Nations leadership and participation in program delivery.

Box 13.1 Net Zero technology can improve energy access for remote communities

Many remote First Nations communities face energy insecurity, being dependent on diesel generators which are unreliable, expensive and emissions intensive. Renewable microgrids, powered by solar, wind, and battery storage, offer a pathway to energy independence, reduced costs, lower emissions and better life outcomes.

The Australian Government is investing in First Nations Community Microgrids through a dedicated $75 million stream in the Australian Renewable Energy Agency's (ARENA) Regional Microgrids Program. This supports projects empowering First Nations communities to participate in their electricity supply arrangements and develop energy infrastructure, resolving barriers to deployment of microgrid solutions.

Under the program, ARENA will provide $13 million to the Remote Area Energy Supply (RAES) First Nations Community Microgrids Project in South Australia, with a matching financial contribution from the South Australian Government. This project will deliver high-penetration renewable energy microgrids to the remote communities of Yalata, Pipalyatjara and Oak Valley. Each community is currently reliant on diesel generation and faces high cost and unreliable energy access.

In the Northern Territory, ARENA will provide $1.4 million to Alice Springs based Ekistica, to lead a project to co-design a scalable, culturally appropriate energy service model tailored for First Nations homeland communities. Working closely with the NT Government, National Indigenous Australians Agency, Land Councils, Aboriginal Housing NT and other partners, the project will tackle long-standing inefficiencies in service delivery and place communities at the center of decision-making.

13.2 Climate change on Country

First Nations peoples have managed Australia's natural environment for over 65,000 years and have experienced the climate changing over this time, with integral knowledge being passed down through generations. Many communities today maintain a deep and enduring connection to the land, seas and waters that make up their Country and Culture. This knowledge and connection to Country should guide Australia's efforts to tackle climate change across Australia.

Climate change on Country is already disrupting cultural practices and threatening the health, social and emotional wellbeing of communities. High temperatures risk delaying traditional ceremonies, bushfires and floods can damage Country including sacred sites, and extreme events are impacting community health, livelihoods and property. Regions such as the low-lying Torres Strait Islands are especially vulnerable to sea level rise. Limited ability to adapt to increased flooding is further compromised by existing cultural and societal challenges. First Nations-led solutions are needed to address these challenges (Box 13.2).

The Indigenous Protected Areas program supports First Nations people to care for their land and sea Country, including through adapting to climate change impacts and building resilience, in line with cultural priorities and knowledge systems.

First Nations peoples are also leading climate mitigation activities through active land management, participating in the Australian Carbon Credit Unit Scheme.

Projects such as savanna fire management (Box 13.3) provide opportunities for First Nations peoples to apply traditional knowledge and strengthen their connection with Country, while also reducing emissions. These projects generate carbon credits which provide income and employment within communities, and benefit biodiversity. Through the Carbon Farming Outreach Program, the Australian Government is partnering with the Indigenous Carbon Industry Network to develop tailored resources and training for trusted advisers of First Nations land managers to support their participation in carbon farming. The Nature Repair Market will also provide opportunities for First Nations people to take climate action through the development of government-accredited methods for nature repair, which can simultaneously support climate action by removing and storing carbon from the atmosphere.[10]

Box 13.2 Supporting First Nations led climate action and education

The Australian Government is supporting a First Nations-led response to the on-ground impacts of climate change. The government is working with regional leaders and Traditional Owners to deliver the Torres Strait and Northern Peninsula Area Climate Resilience Centre through a $15.9 million investment over 6 years (2022–23 to 2027–28).

The centre was developed following a regional roundtable in 2022. Torres Strait participants called for an approach that could connect Traditional Knowledge, lived experience and western science to design and identify climate action in communities across the region.

The centre has been created through a co-design process and implementation is being guided by regional leaders.

In late 2024, the centre released the Torres Strait and Northern Peninsula Area Climate Resilience Grant Program. The program was designed with regional leaders and provides up to $10.8 million over 3 years for the recruitment and training of local First Nations climate resilience officers, to lead practical climate adaptation projects and community education. In early 2025, grants were awarded to 3 regional organisations.

The centre aims to create an enduring dialogue on climate change in the region across all levels of government to provide a consistent and coordinated response to climate challenges.

Kakadu National Park, Northern Territory, Australia.

Box 13.3 Cool burns, big impact - savanna fire management in action

In northern Australia, fire has always been part of the landscape. Today, supported by the Australian Carbon Credit Unit (ACCU) Scheme, Traditional Owners and First Nations ranger groups are reintroducing customary strategic early dry season burning to reduce greenhouse gas emissions and generate income while supporting ecosystem health and cultural land management. As of June 2025, there are 86 projects registered nationwide under the ACCU Scheme's savanna fire management methods.[11]

Arnhem Land Fire Abatement (ALFA) is an Aboriginal-owned, not-for-profit organisation, which supports six registered savanna fire management projects across the Northern Territory, including the 28,000 km² West Arnhem Land Fire Abatement (WALFA) project.[12] WALFA combines First Nations fire knowledge and skills with scientific and technological tools to account for emissions reduction under ACCU Scheme requirements.

At the start of the dry season, Traditional Aboriginal Owners and rangers across Arnhem Land commence a cultural practice passed down through countless generations – carefully burning their custodial estates using sophisticated fire management practices.[13] Rangers break up savanna fuel loads with planned burns between April and July, reducing the risk of intense late-season wildfires that would otherwise release large amounts of methane (CH_4) and nitrous oxide (N_2O). To do this, they undertake extensive planning and consultation, protect important environmental, cultural and infrastructure assets in the landscape and apply planned low-intensity fire to the landscape. Burns are lit by aircraft, vehicles or on foot with matches and drip torches, in suitable weather conditions to protect people, wildlife and culturally significant sites.[14]

WALFA has generated over 2.5 million ACCUs, with more than 5.9 million tonnes CO_2-e abated across all ALFA projects.[15] The impact extends beyond carbon. Income from the WALFA project is reinvested into community priorities including ranger employment, equipment, ecological monitoring and homeland schools.[16] The WALFA project demonstrates that ACCU Scheme savanna fire management projects can reduce emissions, enhance biodiversity, reduce landscape threats, reinforce cultural land management rights and reinvest ACCU income into Aboriginal land management and community outcomes on Country.[17]

13.4 First Nations peoples in the global transition

With support from the Australian Government, First Nations peoples across Australia are advocating for the role of Indigenous Peoples on the world stage. As part of the United Nations Framework Convention on Climate Change (UNFCCC), Australia is pushing for the rights and interests of Indigenous peoples to be considered, and their leadership and participation in the transition to net zero to be enabled.

Through these international dialogues, Australia and international partners are working to share best practice around climate action and adaptation that enhances Indigenous engagement, and strengthen knowledge, technology and practices that support the agency of Indigenous and local climate action.

13.5 Strong partnership approaches underpin our transition

First Nations people are workers, small business owners and entrepreneurs who make a significant contribution to Australia's national economy and our international trade. Australia's net zero transition creates new economic opportunities.

The Australian Government has established the First Nations Economic Partnership to ensure a strong partnership approach to unlocking this potential. The Economic Partnership is investing $75 million to help build Native Title Prescribed Bodies Corporate Holders' capacity to deliver meaningful participation for Native Title holders and their communities, including through partnership with the private sector on clean energy projects.

The Net Zero Economy Authority is also working with First Nations communities to leverage the benefits of the transition and has established a First Nations' Working Partnership to guide its approach.

These partnerships enable Australia to move beyond isolated transactions towards building lasting partnerships that create and share wealth, and ensure First Nations leadership.

Australian Pavillion COP29 in Baku, Azerbaijan.

14. Working with communities

Key messages

- Government will work with communities, including regions most affected by the transition, to ensure they benefit through job creation, productivity growth and support for local industries.
- Effective planning can provide opportunities for land managers to support carbon, biodiversity and productivity goals through land-based abatement.

The Climate Change Authority advised:

> ‘ Gaining and maintaining social licence through trust, legitimacy and credibility is a critical success factor for projects necessary in Australia’s transition to net zero.’

Sector Pathways Review 2024, page 187

Decarbonising Australia’s economy and realising the opportunities of the transition will not be possible without the insights, engagement and support of Australian communities.

Research and practical experience consistently demonstrated that communities are looking for comprehensive, transparent information on the transition and the tangible benefits for their local communities - as well as effective management of local environmental and other concerns.[18]

Our regions are at the forefront of the net zero transition, experiencing changes in production systems, job and market opportunities and the physical landscape. There are enormous opportunities for regions to be leading our clean economy, but there are also challenges that must be addressed to ensure no-one is left behind. Many communities are already actively engaging with the transition, while others need support to build their capacity to engage in discussions around new developments and land use in their local area.

The Australian Government is enhancing policies, planning and practices to ensure the benefits of the transition are shared with communities and diverse needs are balanced.

Albany, Western Australia, Australia.

14.1 Leadership to deliver community benefits

The Climate Change Authority advised:

> ‘ Governments can assist by proactively leading and coordinating engagement with communities to provide information, facilitating benefit sharing, receiving feedback and negotiating outcomes.’

Sector Pathways Review 2024, page 180

The net zero transition will involve a shift to clean industrial operations across our regions, an expansion in electricity infrastructure, and opportunities to use land for multiple purposes to generate new streams of revenue. Consultation for the Net Zero and sector plans highlighted that stakeholders want the government to play an enabling role to help them realise these opportunities.

As part of the *Future Made in Australia Act 2024*, the government introduced the Community Benefit Principles to ensure that public investments deliver broad, tangible benefits to Australians. The principles state that Future Made in Australia support should:

- promote safe and secure jobs that are well paid and have good conditions
- develop more skilled and inclusive workforces, including by investing in training and skills development and broadening opportunities for workforce participation
- engage collaboratively with and achieve positive outcomes for local communities, such as First Nations communities and communities directly affected by the transition to net zero
- strengthen domestic industrial capabilities including through stronger local supply chains
- demonstrate transparency and compliance in relation to the management of tax affairs, including benefits received under Future Made in Australia.

By setting the standard for how large-scale net zero industries should support communities, the Australian Government is leading the way in delivering a fair and orderly transition for communities.

The Australian Government is also taking action to ensure communities are appropriately engaged in renewable development as Australia decarbonises its electricity system. There are diverse views and attitudes across the country regarding the local dimension of the energy transition, including the location of new renewable electricity infrastructure.

These are not easy challenges to grapple with. The government is working with communities to understand, and where feasible, mitigate their concerns. This is a shared responsibility with the private sector. Initiatives are underway including implementing the National Guidelines for Community Engagement and Benefits for Electricity Transmission Projects in partnership with states and territories. These guide project proponents’ engagement with communities to minimise adverse impacts and ensure local benefits match community priorities. This complements the Australian Government’s commitment to ensuring fair and transparent community engagement around renewable energy infrastructure (Box 14.1).

Box 14.1 The Australian Energy Infrastructure Commissioner

The Australian Energy Infrastructure Commissioner (AEIC) leads efforts to promote community engagement practices in the renewable energy transformation. The AEIC is responsible for:

- dispute resolution and engagement with local communities, including First Nations communities, about proposed or operating energy projects
- providing transparent information about the planning and operation of major energy projects and the renewable energy transition
- identifying and promoting best practices related to the planning, development and operation of energy projects.

In 2023, the former commissioner undertook an independent Community Engagement Review to advise on improving community engagement on renewable energy infrastructure developments. The review made 9 recommendations, which were accepted in full or in principle by the Energy and Climate Change Ministerial Council.

A Developer Rating Scheme is now underway as a pilot program. The Scheme will deliver an independent, voluntary, scorecard-based assessment of developers using objective measures. This will provide landholders and communities with reliable information about companies that propose new local energy infrastructure.

14.2 Balancing land-based abatement with other land management goals

The Climate Change Authority advised:

> ‘ Balancing competing land uses is key to not only avoiding unintended consequences but also to earn social licence. Stakeholders highlighted that it will be important that actions to increase land-based removal also achieve multiple benefits, like biodiversity, social and cultural outcomes.’
>
> Sector Pathways Review 2024, page 101

Scaling up land-based abatement is a priority in Australia’s net zero transition (Chapter 6).

Unlocking the benefits of land-based abatement requires that we balance agricultural production, carbon storage and biodiversity objectives, including the water needs for each.

Australia’s landscape already supports a diverse range of activities. Governments, the private sector and communities play a role in finding the appropriate balance between different land uses in different places. However, decisions about how land is managed, which crops to grow, or which markets to access remain largely up to individual landowners.

Capacity building, such as through the Australian Government’s Carbon Farming Outreach Program, is helping land managers to make informed choices (as discussed in Chapter 9). Industry groups also play a role. For example, the Carbon Market Institute has introduced a code of conduct for promoting best practice integrity, transparency and accountability in the carbon market, including when engaging with First Nations communities.[19]

More can be done to manage risks and unlock further opportunities. The Australian Government is exploring ways to support uptake of carbon storage activities, especially where there are synergies with nature and productivity, including:

- working to encourage multiple benefits from ACCU Scheme projects including better recognition of co-benefits and fostering interoperability with the Nature Repair Market
- using policy design to encourage activities which integrate carbon storage with food and fibre production, rather than wholesale or large-scale land-conversion, particularly on highly productive agricultural land. This includes farm forestry and managing lands to increase soil carbon
- exploring options to strengthen data and analysis of land use to understand, track and manage changes and impacts over time.

Darlington Point Solar Farm, NSW, Australia.

14.3 Working with communities significantly affected by the transition

The net zero transition will affect all Australians, but will have particular impact on Australia's industrial regions. The Net Zero Economy Authority (NZEA) has been established to ensure regions, communities and workers are supported to manage the impacts, and share in the benefits, of the net zero economy. This includes:

- helping workers in coal and gas facilities affected by the transition to prepare for and find new, well-paid, safe and secure jobs
- supporting affected communities to prosper through economic development and investment
- being a trusted and influential voice to build understanding of, and shape policy on, the regional net zero transition.

Established in legislation, the NZEA is working closely with the regions that will be most affected by Australia's transition to net zero, currently prioritising efforts in Collie (WA), Central Queensland, the Hunter Region (NSW) and the Latrobe (Vic), as well as supporting consideration of transformational opportunities in the Pilbara (WA) and Upper Spencer Gulf (SA).

As these regions see coal-fired power stations close, the NZEA and the Department of Employment and Workplace Relations will support workers, communities and businesses to take the steps to transform their local economy. This will include supporting skills development, supply chain participation, and regional investment to create opportunities. Support for transitioning workforces including the Energy Industry Jobs Plan and Regional Workforce Transition Plans is discussed further in Chapter 11.

The NZEA joins an existing network of regional officials and Australian Government-funded regional initiatives that are closely connected to their communities.

Regional Workforce Transition Officers help business, industry, and communities, navigate and coordinate the transition to net zero in key employment regions. Regional Development Australia committee members and AusIndustry Regional Managers build on this network to provide valuable linkages between regional communities and the Australian Government. They inject local and regional views, concerns and interests from the community and industry in the policy process and program design.

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Table of boxes and figures

Darlington Point Solar Farm, NSW, Australia.

Abbreviations and acronyms

ACCU	Australian Carbon Credit Unit
ACTU	Australian Council of Trade Unions
AEIC	Australian Energy Infrastructure Commissioner
ARENA	Australian Renewable Energy Agency
CBAM	Carbon Border Adjustment Mechanism
CCA	Climate Change Authority
CCS	Carbon Capture and Storage
CCU	Carbon capture and use
CEFC	Clean Energy Finance Corporation
CER	Consumer energy resources
CIS	Capacity Investment Scheme
CO_2	Carbon dioxide
CO_2-e	Carbon dioxide equivalent
CRC	Cooperative Research Centre
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DCCEEW	Department of Climate Change, Energy, the Environment and Water
ECMC	Energy and Climate Change Ministerial Council
EFA	Export Finance Australia
EMM	Environment Ministers' Meeting
ESG	Environmental, social and governance
EV	Electric vehicle
FAST-P	Singapore's Financing Asia's Transition Partnership
FGS	Future Gas Strategy
FNCES	First Nations Clean Energy Strategy
GDP	Gross Domestic Product
GO Scheme	Guarantee of Origin Scheme
GWP	Global warming potential
HFCs	Hydrofluorocarbons
IEA	International Energy Agency
IMF	International Monetary Fund
ISP	Integrated System Plan
ITMM	Infrastructure and Transport Ministers' Meeting
JSA	Jobs and Skills Australia
LCLF	Low carbon liquid fuel
Mt CO_2e	Million tonnes of carbon dioxide equivalent
NABERS	National Australian Built Environment Rating System
NAP	National Adaptation Plan
NCRA	National Climate Risk Assessment

NDC	Nationally Determined Contribution
NEM	National Electricity Market
NEVS	National Electric Vehicle Strategy
NGERS	National Greenhouse and Energy Reporting Scheme
NGOs	Non-Government Organisations
NRF	National Reconstruction Fund
NTEP	National Energy Transformation Partnership
NVES	New Vehicle Efficiency Standard
NZEA	Net Zero Economy Authority
PCIFP	Pacific Climate Infrastructure Financing Partnership
PM&C	Department of the Prime Minister and Cabinet
PV	Photovoltaic (solar)
R&D	Research and development
RD&D	Research, development and deployment
RETA	Renewable Energy Transformation Agreement
SAF	Sustainable aviation fuel
SFR	Sustainable Finance Roadmap
SWIS	South West Interconnected System
UNFCCC	United Nations Framework Convention on Climate Change
WALFA	West Arnhem Land Fire Abatement

Glossary

Abatement	A reduction in atmospheric greenhouse gases through emissions avoidance or removal and sequestration of carbon from the atmosphere.
ACCU project	Eligible offsets projects registered under the ACCU Scheme.
ACCU Scheme	An Australian Government scheme that offers landholders, communities and businesses the opportunity to run projects in Australia that avoid the release of greenhouse gas emissions or remove and sequester carbon from the atmosphere. It is enacted through the Carbon Credits (Carbon Farming Initiative) Act 2011 and the Carbon Credits (Carbon Farming Initiative) Rule 2015.
Active transport	Ways of travelling including walking, cycling and other physically active modes of transport that can be undertaken alone or combined with public transport.
Climate adaptation	In human systems, the process of adjustment to actual or expected climate and its effects, to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate and its effects.
Carbon border adjustment mechanism	A mechanism that seeks to equalise the carbon compliance costs facing domestic and overseas production by imposing an adjustment at the border.
Carbon capture and storage (CCS)	A process in which carbon dioxide from industrial or energy related sources is separated (captured), conditioned, compressed and transported to a (usually geological) storage location for long-term isolation from the atmosphere.
Carbon capture and use (CCU)	A process in which carbon dioxide is captured and the carbon used in a product. The climate effect of CCU depends on the product lifetime, the product it displaces, and the carbon dioxide source (fossil, biomass or atmosphere).
Carbon credit	A tradeable unit that represents 1 tonne of carbon dioxide equivalent (t CO_2e) stored or avoided by a project.
Carbon leakage	Carbon leakage refers to shifts in the production of emissions-intensive trade-exposed commodities from countries with more ambitious emissions reduction policies to those with weaker (or no) emissions reduction policies, due only to differences in policy stringency across countries.
Carbon offset	A type of carbon credit that represents a reduction in emissions – whether prevented from entering the atmosphere or removed from the atmosphere – that is used to compensate for emissions that occur elsewhere.
Circular economy	An economic system focused on reducing waste, reusing resources and designing products for longer life, recyclability and minimal environmental impacts.
Critical minerals	Critical minerals are metallic or nonmetallic materials that are essential to our modern technologies, economies, and national security, and whose supply chains are vulnerable to disruption.
Decarbonise	To stop or reduce carbon gases, especially carbon dioxide, being released into the atmosphere as the result of a process, like the burning of fossil fuels.
Demonstrated technologies	Technologies that are available but not yet widely adopted.
Early-stage technologies	Technologies that are still in the research, development and demonstration stage or are not yet ready to be deployed.
Electrification	Switching from energy sources, such as liquid fuels or gas, to electricity.
Embodied emissions	Emissions generated during the production and transportation of goods, from the extraction of raw materials to the manufacturing process and final delivery to the consumer. For infrastructure, embodied emissions come from the emissions embodied in the input materials, as well as the emissions generated during the construction and installation processes.
Emissions budget	A cumulative amount of emissions that can be emitted, e.g. 4,000 Mt CO_2e during a specified time period, e.g. 2021–2030.
Energy efficiency	The amount of energy required to perform given task or produce a given result. Increasing energy efficiency means using less energy for the same result.
Energy performance	Covers the broad management of energy demand, including energy efficiency; demand flexibility (or load shifting); and electrification or fuel switching.

Enteric fermentation	The process in animals by which gases, including methane, are produced as a by-product of microbial fermentation associated with digestion of feed.
Firming/firmed renewables	Ensuring reliability of electricity supply by supplementing variable renewable energy with dispatchable generation sources such as energy storage (i.e. batteries).
Fossil fuels	Fossil fuels include coal, petroleum, natural gas, oil shales, bitumens, tar sands, and heavy oils. All contain carbon and were formed as a result of geologic processes acting on the remains of organic matter produced by photosynthesis, a process that began in the Archean Eon (4.0 billion to 2.5 billion years ago).
Green metal	Iron, steel, alumina and aluminium produced with low or zero greenhouse gas emissions.
Greenhouse gases	Any gas (natural or produced by human activities) that absorbs infrared radiation in the atmosphere, leading to warming effects. Greenhouse gases include carbon dioxide, methane and nitrous oxide.
Hard-to-abate emissions	Emissions from essential processes and products with no near-term decarbonisation options.
Hydrofluorocarbons (HFCs)	A type of synthetic greenhouse gas, mostly used in refrigeration and air-conditioning equipment.
Hydrogen	A substance commonly used in industrial applications, such as the production of methanol and ammonia, and can also be used as a fuel. It is traditionally produced by stripping hydrogen from natural gas using steam, which produces carbon dioxide as a by-product. Low-carbon or renewable hydrogen can be produced from water using renewable energy.
Low and zero emissions technologies	Technologies that significantly reduce greenhouse gas emissions compared to traditional alternatives, and mitigate other environmental impacts.
Low carbon liquid fuel (LCLF)	Liquid fuels with lower lifecycle emissions than conventional fossil fuels. LCLFs can be sustainably produced from biomass, waste materials and/or green hydrogen.
Mature technologies	Technologies that are ready and available to be deployed now.
Microgrid	A set of distributed energy resources (see above) that provides energy generation and storage at a local level and can be controlled independently, either within a wider grid or as a standalone grid.
Mitigation	Reducing greenhouse gas emissions in order to stop climate change getting worse.
Mt CO_2e	Million tonnes of carbon dioxide equivalent. Is used to standardise different greenhouse gas emissions impacts on climate change to be reported as a single value. Usually shown in tonnes (t CO_2-e) or million tonnes (Mt CO_2-e).
Net emissions	The sum of anthropogenic greenhouse gas emissions to the atmosphere and anthropogenic removals of greenhouse gases from the atmosphere.
Net negative emissions	Metric-weighted anthropogenic carbon removals in excess of metric-weighted anthropogenic greenhouse gas emissions.
Net zero emissions (carbon neutrality)	An overall balance between greenhouse gas emissions and removals.
Prospective technologies	Emerging technologies or operational changes which are at an early stage of development.
Renewable energy	Energy from a source that is not depleted when used, such as wind or solar power.
Renewable fuels	Fuels made from biogenic and/or synthetic feedstocks (source materials), also referred to as 'sustainable fuels' and 'low carbon liquid fuels'.
Residual emissions	The volume of gross anthropogenic greenhouse gas emissions (see Gross emissions) that remain after emissions reduction activities, but not including emissions removal. Also referred to as residual gross emissions.

Appendix A: Sector plan snapshots

Australian Government

Electricity & Energy Sector Plan

Sector Overview

Covers the generation of electricity, manufacture of petroleum products, the supply of gas, and other related services

- Directly accounted for around 1% of GDP in 2023, and underpins other sectors
- 34% of national emissions in 2024
- Emissions peaked in 2009 and are now 22% below 2005 levels, with renewables displacing coal
- Renewables have grown from 13% to 40% of generation in our two largest grids over the past 10 years

Abatement opportunities

Improve energy performance
through electrification, boosting energy efficiency and increasing demand flexibility

Decarbonise and expand electricity network
through investment in firmed renewables and incentivising consumer energy resources

Renewable gases
such as biomethane and hydrogen

Low carbon liquid fuels
like Sustainable Aviation Fuel and renewable diesel

Pathway to Net Zero

Emissions decline as our energy system becomes more efficient, more electrified and transitions to clean energy supply

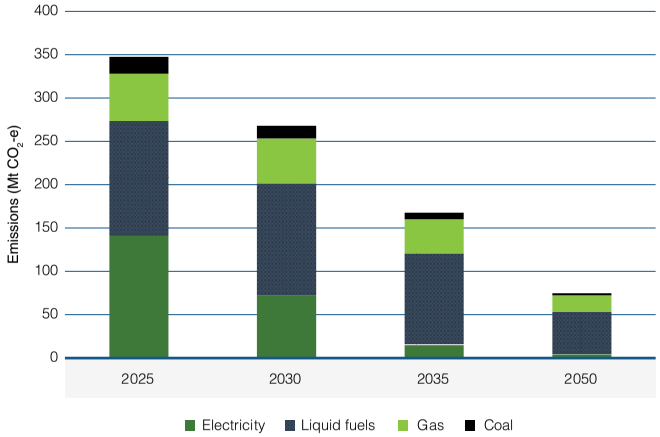


Figure: Electricity & energy sector emissions

Source: DDCCEEW and Treasury modelling and analysis 2025, Baseline Scenario. Pathways are illustrative only.

Key challenges

- Delivering better network utilisation and clearer market investment signals
- Timely deployment of infrastructure through smooth planning and approvals processes and connection processes
- Building social licence, and ensuring greater regional benefits
- Reducing cost and increasing availability of LCLF and renewable gases

Actions

1. Accelerate energy performance improvements

- National Energy Performance Strategy
- Household Energy Upgrades Fund and Social Housing and Energy Performance Initiative
- $50 million to support energy upgrades for community sports clubs
- Expand and reform existing rating and disclosure mechanisms such as Greenhouse Energy Minimum Standards, the Commercial Building Disclosure Program, and the Nationwide House Energy Rating Scheme
- Establish a Demand-side Statement of Opportunities
- $40 million to accelerate the rollout of kerbside and fast electric vehicle charging

2. Expand and decarbonise electricity supply

- Snowy Hydro 2.0
- Clean Energy Finance Corporation
- Capacity Investment Scheme
- Consumer Energy Resources Roadmap
- Cheaper Home Batteries program
- Grid Enhancing Technologies program, Accelerating Connections Fund, Enhancing Capacity of Existing Network Infrastructure
- Rewiring the Nation
- National Electricity Market Review

3. Develop renewable gases while maintaining supply security

- Safeguard Mechanism, including review in 2026-27
- Gas Market Review
- Guarantee of Origin scheme
- National Hydrogen Strategy, production supports and H2Global

4. Decarbonise liquid fuels while maintaining supply security

- Safeguard Mechanism, including review in 2026-27
- Future Made in Australia Innovation Fund
- $1.1 billion Cleaner Fuels Program

Phases of the transition

To 2030

- Renewable electricity generation increases to 82% on-grid
- Rooftop solar and battery uptake expands, cutting bills and emissions
- Electric vehicle uptake drives declines in overall liquid fuel demand
- Renewable gas substitutes for some natural gas uses
- Foundations of hydrogen and LCLF markets established

To 2035

- Economy-wide energy efficiency improvements support growing demand
- Demand flexibility is embedded as electrification of homes, businesses, low-heat industrial use and light vehicles continues
- Orderly coal exit as firmed renewable electricity supply grows
- Renewable gas supply scales up and begins to displace natural gas use that can't be electrified
- Growing LCLF production supports a lower-emissions fuel mix

To 2050

- The energy system is high performance: efficient, flexible and optimised to deliver reliable and secure renewable energy
- Electricity demand grows significantly as new industries scale
- Firmed renewables meet all our electricity needs
- Natural gas increasingly replaced by renewable gases
- LCLF comprises a significant proportion of remaining liquid fuel use and Australia is an advanced producer and exporter

Australian Government

Agriculture and Land Sector Plan

Sector Overview

Covers emissions and carbon storage from agricultural activities, land management and on-farm energy use

- Agriculture accounted for 2.4% of value-added GDP, 10.8% of exports, and 5.9% of rural employment in 2024
- Agriculture was 19.6% of national emissions and the land sector was a net sink equivalent to -16.5% of national emissions in 2024
- Agricultural emissions are dominated by methane from ruminant livestock and manure management, and nitrous oxide from agricultural soils
- Land sector has changed from a major net source of emissions to a large net sink. Agriculture emissions have been broadly stable

Abatement opportunities

Enteric fermentation
e.g. herd and pasture management, feed additives

Manure management
e.g. covered anaerobic ponds, anaerobic digesters

Agricultural soils
e.g. precision agriculture, enhanced efficiency fertilisers, fertiliser use efficiency

On-farm energy use
e.g. renewables, electrification, energy performance improvements, low carbon liquid fuels

Protect and enhance carbon stores in vegetation and soils
e.g. environmental plantings and farm forestry

Pathway to Net Zero

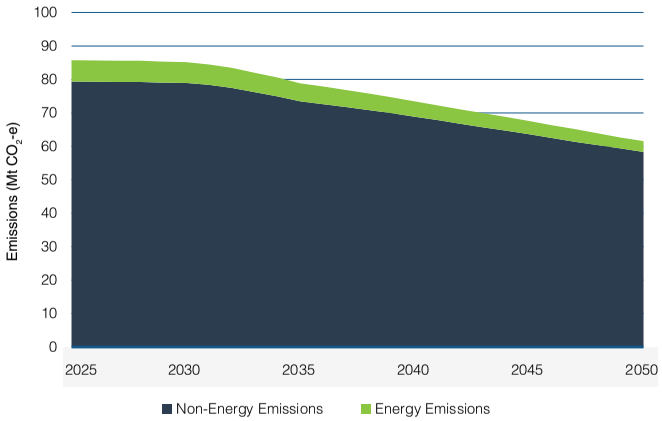


Figure 1: Agriculture sector emissions

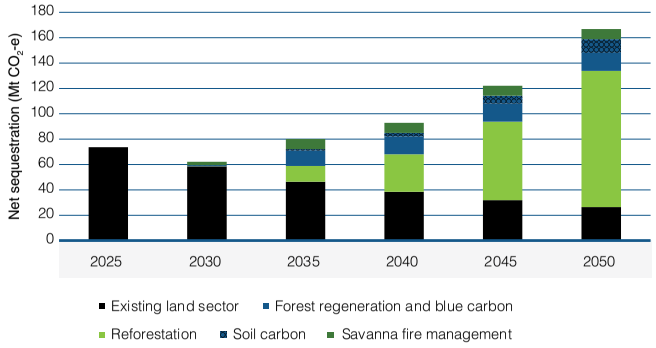


Figure 2: Land sector net carbon removals

Source: Baseline Scenario, Treasury modelling and analysis 2025. Pathways are illustrative only.

Actions

1. **Understand emissions at the enterprise and national level**
   - Voluntary emissions estimation and reporting standards, and incorporating standards into emissions calculators
   - Improving National Greenhouse Accounts to better reflect regional differences and mitigation actions
2. **Support innovation to deliver commercially viable abatement options**
   - Zero Net Emissions Agriculture Cooperative Research Centre
   - Methane Emissions Reduction in Livestock program
   - Investment in Rural Research and Development Corporations
3. **Strengthen on-ground action**
   - New $1 billion investment in the Regional Investment Corporation
   - Carbon Farming Outreach Program
   - Natural Heritage Trust Climate-Smart Agriculture Program
   - Clean Energy Finance Corporation
4. **Enhance the role of land in a net zero economy**
   - Australian Carbon Credit Unit Scheme
   - Nature Repair Market
   - Support Plantation Establishment Program
   - Australian Bushland Program
   - $1.1 billion Cleaner Fuels Program

Key challenges

- Diverse industry, with varying capacity to engage in decarbonisation
- Uplift and use of greenhouse gas accounting systems to support understanding of emissions
- Lack of commercially viable abatement options for use in agriculture
- Balancing land use for agricultural production, carbon storage, feedstocks and nature repair

Phases of the transition

To 2030

- Agriculture and land emissions and sequestration largely stable
- Investments in technology solutions to reduce emissions longer-term
- Investments in systems, knowledge and capacity to support on-ground action, with incremental electrification underway

To 2035

- Emissions intensity of agriculture declining through herd and pasture management, more efficient use of inputs such as fertiliser, and energy performance improvements
- Reforestation practices are increasing with incentives supporting wider uptake

To 2050

- Technologies for agriculture emissions reductions are commercially viable and taken up at scale
- Market signals, including demand for low-emissions intensity products and financial returns for carbon storage and nature repair, are stimulating on-ground action
- The transition is benefitting local communities, supporting First Nations participation, increasing agricultural productivity, protecting and enhancing our biodiversity and contributing to food security
- Agriculture and land are appropriately contributing to Australia's net zero goal

Australian Government

Built Environment Sector Plan

Sector Overview

Covers residential, commercial and public buildings, urban open spaces and water infrastructure

- Australia has more than 11 million residential and 1 million commercial and public buildings
- Construction subsector within the built environment accounted for around 7% of GDP in 2023
- 5% of national emissions in 2024
- Indirectly, accounts for almost half of emissions from electricity generation, and further emissions embodied in building materials
- Since 2005, direct emissions have risen by 30% resulting from increase in the number of buildings, specifically apartments
- Home energy ratings have risen to an average of 6.8 stars in 2025 from 1.8 stars in 2003

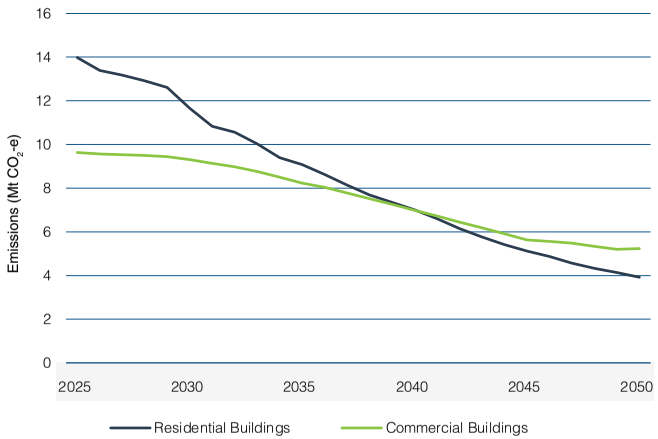
Abatement opportunities

Electrification of buildings

Improving energy performance
through energy efficiency and demand flexibility

Improve building designs,
material efficiency and embodied carbon within building materials

Pathway to Net Zero



Built Environment sector emissions

Source: Baseline Scenario, Treasury modelling and analysis 2025. Pathways are illustrative only.

Key challenges

- Retrofitting existing buildings due to upfront costs, or complexity for commercial, multi-use or multi-unit buildings
- Overcoming split incentives: where property owners incur the costs of upgrades, but may be reluctant to invest as energy savings bill benefits flow to tenants
- Ensuring equity for households facing additional barriers, for example low-income households face compounding issues as households with lower capital and more likely to rent
- Regulations for buildings are shared across all levels of government, creating complexity in achieving national consistency and potential for overlapping regulation

Actions

1. Accelerate electrification and increase energy performance

- National Energy Performance Strategy, including $1 billion Household Energy Upgrades Fund and $800M Social Housing Energy Performance Initiative
- Cheaper Home Batteries Program
- Modernise the Greenhouse Energy Minimum Standards
- Expand the National Australian Built Environment Rating System for non-residential buildings
- Expand the Commercial Building Disclosure Program
- Expand the Nationwide House Energy Rating Scheme (NatHERS) to cover existing homes
- $50 million to support energy upgrades at community sports clubs
- Clean Energy Finance Corporation

2. Continued collaboration with jurisdictions through Ministerial Councils for greater national consistency in building regulations and policies

- Implement the Trajectory for Low Energy Buildings
- Implement Consumer Energy Resources Roadmap

3. Innovation and deployment of technology to support material efficiency and low carbon options for concrete, cement and steel

- ARENA, including Future Made In Australia Innovation Fund
- Low Carbon Concrete Centre

Phases of the transition

To 2030	To 2035	To 2050
• Household and business energy efficiency upgrades and electrification are underway • Strong uptake of household batteries and solar • Frameworks to reduce embodied carbon established • Investment in research and development to support modern methods of construction • Phase down of high global warming potential refrigerants (HFCs) in air conditioning and refrigeration	• Households and business continue electrification and energy performance retrofits • Improved standards for new buildings • Appliance and equipment efficiency continuing to improve through standards and as new technology comes online • Introduce embodied carbon requirements for most buildings	• All users that can, have electrified • HFC phase down completed in 2036 • Embodied carbon in construction and renovation is minimised

Australian Government

Industry Sector Plan

Sector Overview

Covers manufacturing and processing of goods, refining and waste processes across 9 sub-sectors

- Accounts for the equivalent of 7.7% of GDP (2024), with 120,000 businesses generating $205.8 billion in gross value added
- 14% of national emissions in 2024
- The Safeguard Mechanism covers approximately 56% of industrial scope 1 emissions

Abatement opportunities

Improve energy performance
through energy efficiency and demand flexibility

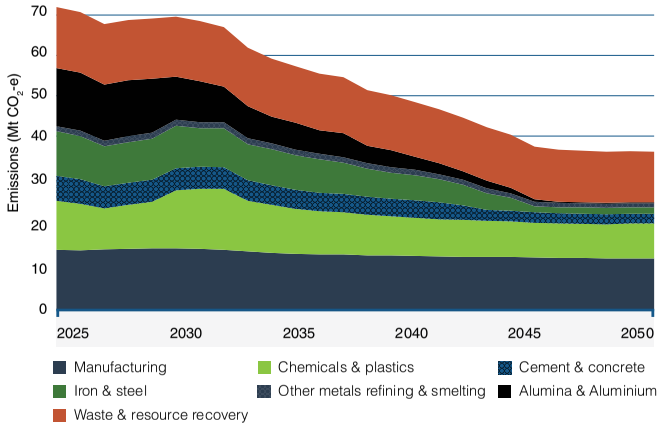
Electrify uses and processes where possible

Switch to alternative fuels and inputs where electrification not feasible
e.g hydrogen, low carbon liquid fuels

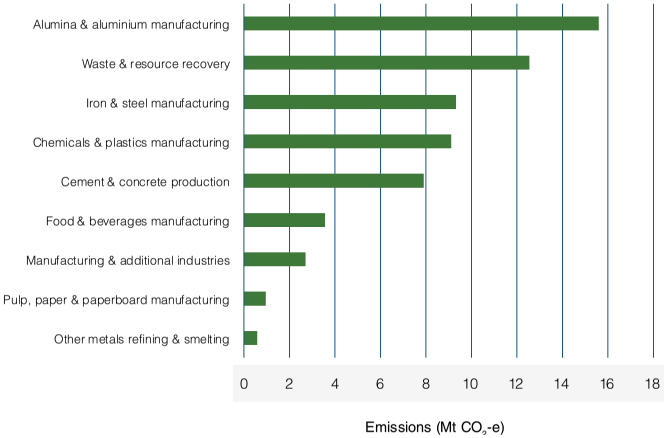
Key challenges

- Scaling supply of firmed renewable energy and low carbon fuels and incentivising electrification
- Development of commercially viable options for industrial processes requiring high-temperature heat or natural gas as a feedstock
- Maintaining the competitiveness of industrial facilities through the transition

Pathway to Net Zero



Industry sector emissions



Industry sector emissions sources 2024

Source: Baseline Scenario, Treasury modelling and analysis 2025. Pathways are illustrative only.

Actions

1. Improve energy use now to reduce costs

- $5 billion support through National Reconstruction Fund
- Energy Efficiency Grants for Small and Medium Sized Enterprises
- National Energy Performance Strategy
- Safeguard Mechanism, including review in 2026-27

2. Electrify processes where possible

- Safeguard Mechanism, including review in 2026-27
- Clean Energy Finance Corporation
- Australian Renewable Energy Agency, including $40 million National Industrial Transformation Program and $400 million Industrial Transformation Stream
- Powering the Regions Fund

3. Switch to alternative fuels and inputs

- Safeguard Mechanism, including review in 2026-27
- National Hydrogen Strategy, Hydrogen Production Tax Incentive, Hydrogen Headstart
- $1.1 billion Cleaner Fuels Program
- Australian Renewable Energy Agency

4. Invest in technology opportunities to support the transition

- $1.5 billion Future Made in Australia innovation fund
- National Reconstruction Fund including a new $5 billion Net Zero Fund
- $1 billion Green iron investment fund
- $2 billion Green aluminium production credit
- $1 billion Solar Sunshot
- $500 million Battery Breakthrough Initiative, delivered by ARENA

Phases of the transition

To 2030	To 2035	To 2050
• Commercially available abatement technologies taken up, including electrification of low temperature heat processes • Foundations of hydrogen market established • Expand and decarbonise electricity supply (See energy and electricity sector plan)	• Heavy industry gradually deploying technologies such as electric boilers, high temperature heat pumps and mechanical vapour recompression as they become commercially available • Sub-sectors such as iron and steel, alumina and aluminium begin fuel switching and using alternative feedstocks such as hydrogen as they become available	• Growth of new industry opportunities in green metals, green chemicals, clean energy manufacturing and other areas of comparative advantage • Deployment of carbon management technologies, and any breakthrough technologies like flash ironmaking, molten oxide electrolysis or hydrogen plasma smelting

Australian Government

Resources Sector Plan

Sector Overview

Covers exploration and production of minerals, oil and gas, and coal resources. Also covers mine closure, decommissioning and rehabilitation

- Contributed 11.4% of Australia's GDP in 2024 and two thirds of Australia's total merchandise exports in 2025
- Contributes a significant proportion of global exports of LNG (20% in 2024) and metallurgical and thermal coal (46% and 19% in 2023)
- 22% of national emissions in 2024, mostly from gas and coal production
- Sector emissions saw a continual increase from 2005 through to 2020, but are now declining
- The Safeguard Mechanism covers 87% of the sector's emissions

Abatement opportunities

Reducing fuel combustion emissions
through electrification and low-carbon fuels
e.g. LCLF and hydrogen

Reducing fugitive emissions
through ventilation air methane (VAM) abatement, leak detection and repair, pre-drainage of coal methane and reduced routine venting and flaring

Scaling up carbon management technologies
e.g. carbon capture and storage (CCS)

Pathway to Net Zero

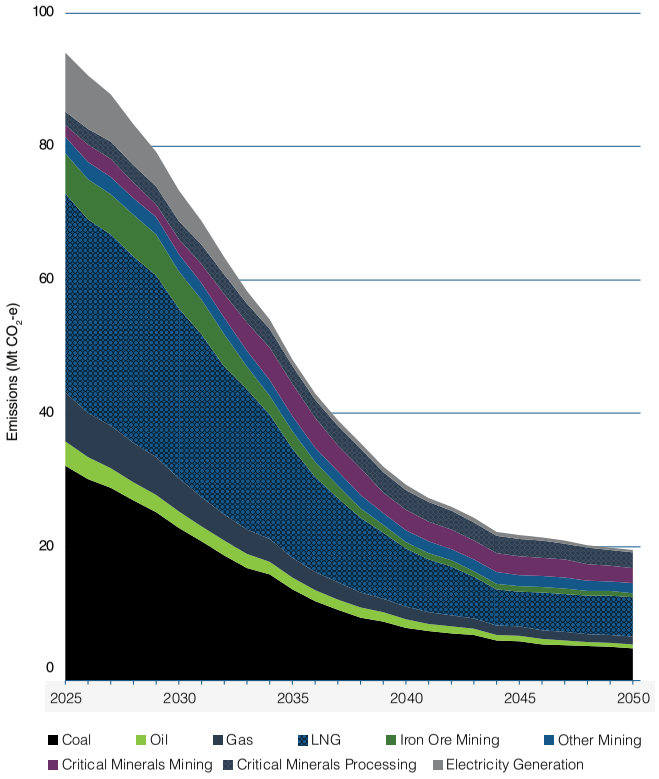


Figure 1: Projected emissions in the resources sector to 2050

Source: Baseline Scenario, Treasury modelling and analysis 2025. Pathways are illustrative only.

Actions

1. Reduce fuel combustion emissions
- Safeguard Mechanism, with review in 2026-27
- Future Made in Australia Innovation Fund
- Powering the Regions Fund
- Clean Energy Finance Corporation
- $1.1 billion Cleaner Fuels Program

2. Reduce fugitive emissions
- Safeguard Mechanism, with review in 2026-27
- Future Gas Strategy, including offshore venting and flaring
- Powering the Regions Fund
- Enhanced measurement, including expert panel
- Working with states on regulatory frameworks

3. Scale up carbon management technologies
- Safeguard Mechanism, with review in 2026-27
- National Reconstruction Fund
- Resourcing Australia's Prosperity

Key challenges

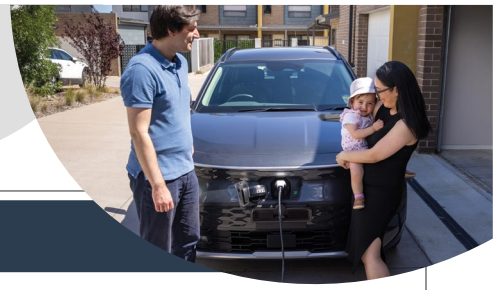
- Barriers to retrofitting abatement technologies to existing facilities, including cost, commercial, environmental and infrastructure
- Development of commercially viable low-carbon fuels, alongside deployment of firmed renewable energy
- Maintaining Australia's role as a reliable trading partner for minerals, metals and energy through the global transition

Phases of the transition

To 2030	To 2035	To 2050
• Reduced routine venting and flaring from oil and gas facilities • New resources facilities designed for electric power and improved energy efficiency, where technically and commercially feasible • Demonstration and commercialisation of electrified haulage and equipment • Demonstration of VAM abatement technology in Australian coal mines • Expansion of CCS	• Increased electrification and energy performance across the sector • Deployment of heavy electric vehicles and equipment, with greater penetration of low carbon liquid fuels and renewable energy in remote regions • Greater use of methane pre-drainage in coal mines • Scale-up of VAM abatement technology in coal mines • Use of CCS continues to grow	• Widespread use of VAM abatement and pre-drainage technologies in coal mines • Increased use of low-carbon fuels • Use of CCS continues to grow

Australian Government

Transport Sector Plan



Sector Overview

Covers light and heavy road transport, rail, maritime, aviation and the construction of transport infrastructure

- Accounts for 4.6% of Australia's GDP (transport, postal and warehousing industry, 2024) and underpins many other sectors
- 22% of national emissions in 2024
- After steady growth since 2005, emissions dipped in 2020-2022 with COVID restrictions but are now 21% above 2005 levels
- Electric vehicle uptake is accelerating, growing from 0.8% of new light vehicle sales in 2020 to 10% in 2025

Abatement opportunities

Electrification of light vehicles
and improved energy efficiency

Electrification of heavy vehicles
Low carbon liquid fuels (LCLF) or hydrogen where battery electric is not feasible

Track electrification, battery electric
LCLF or hydrogen where battery electric is not feasible

Hydrogen derived fuels
(e.g. methanol or ammonia), hydrogen and LCLFs

LCLF (Sustainable aviation fuel)
Electrification or hydrogen for short haul

Pathway to Net Zero

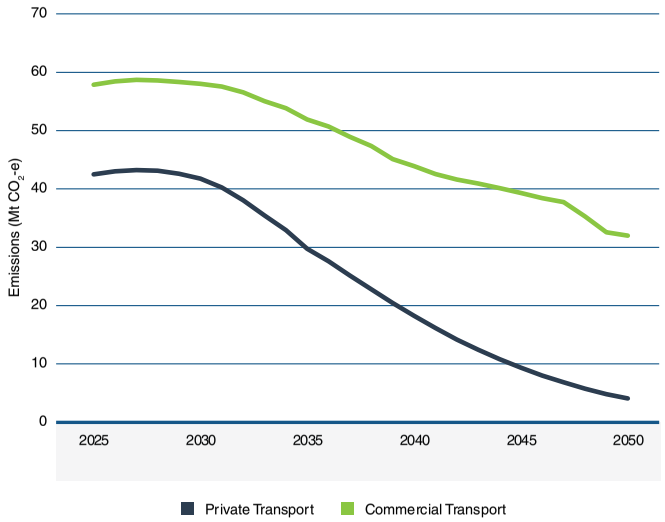


Figure: Transport sector emissions

Source: Baseline Scenario, Treasury modelling and analysis 2025. Pathways are illustrative only.

Key challenges

- Accelerating rollout of EV charging infrastructure
- Solutions for longer range heavy vehicles, maritime and aviation not yet commercially viable
- Reducing cost and increasing availability of LCLF and hydrogen

Actions

1. Invest in enabling low and zero emissions infrastructure

- Infrastructure Policy Statement & Infrastructure Investment Program
- $100 million Active Transport Fund, High-Speed and Inland Rail
- National Freight and Supply Chain Strategy

2. Electrify and increase energy performance

- New Vehicle Efficiency Standard including 2026 review
- National EV Strategy
- Safeguard Mechanism including 2026-27 review
- $40 million to accelerate the rollout of kerbside and fast electric vehicle charging
- Electric Car Discount
- Maritime Emissions Reduction National Action Plan

3. Switch to low carbon alternatives

- $1.1 billion Cheaper Fuels Program
- Guarantee of Origin & Fuel Quality Standards
- National Hydrogen Strategy and production supports
- Sustainable Aviation Fuel (SAF) Funding Initiative
- Australian Jet Zero Council

4. Innovate to expand cost competitive technology options

- $250 million Future Made in Australia Innovation Fund for LCLF
- $475 million Driving the Nation Fund
- $500 million Powering Australia Technology Fund

5. Scale up efforts to reduce embodied emissions

- National Carbon Values for use in cost benefit analyses
- National Sustainable Procurement in Infrastructure Guideline
- $21 million for Low Carbon Concrete Centre
- Future Made in Australia green metal investments

Phases of the transition

To 2030	To 2035	To 2050
• EVs become increasingly more affordable • On-going investment in charging infrastructure • Electrification of buses and small trucks • Trials for battery electric rail, short range maritime and aviation • Foundations of hydrogen and LCLF (including sustainable aviation fuel) markets established • Continued investment in active and public transport infrastructure	• EV market and charging infrastructure matures; significant proportion of light vehicles are EVs • Bi-directional charging and vehicle to grid capabilities scale up • Battery electric and hydrogen-fuel cells begin to be deployed for rail, short range ships and flights • LCLF and hydrogen market grows, supported by certification and accounting frameworks • National rail charging and refuelling network and intermodal hubs	• EVs, battery and hydrogen technologies widespread – including in rail and shipping • Bidirectional charging widespread, supporting grid capacity and stability • LCLF comprises a significant proportion of remaining liquid fuel use and Australia is an advanced producer and exporter • Low emission ports and airports operational

Australian Government

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