

FROM PARIS TO GLASGOW: A WORLD ON THE MOVE

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Cover image: Dawn over Glasgow's River Clyde, SSE Hydro and Science Centre.
Credit: Ian Dick.

The Climate Council acknowledges the Traditional Custodians of the lands on which we live, meet and work. We wish to pay our respects to Elders past, present and emerging and recognise the continuous connection of Aboriginal and Torres Strait Islander people to Country.

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Key findings

1

This year marks a defining moment in the world's response to climate change. Avoiding climate catastrophe requires all countries to close the gap between what's required and what's been committed, by cutting their emissions faster and more substantially this decade.

- › The *Paris Agreement* was the first binding and universal agreement for international cooperation on climate change. It commits all countries to limit global warming to well below 2°C and pursue efforts to limit it to 1.5°C, as breaching these thresholds would prove disastrous for humanity.
- › Since then, Australia's strategic allies and biggest trading partners have substantially strengthened their commitments. In contrast, Australia is standing still and risks missing out on the economic opportunities of the global energy transition.
- › Despite these new climate pledges and significant international momentum, there remains a major shortfall between what's being promised and the pace of action required. Alongside other countries, Australia must do its part to help close this gap at the next major UN climate talks in Glasgow.

2

By strengthening our climate commitments and actions this decade, Australia can have an outsized and positive influence on what happens next around the world.

- › Australia is a major emitter in its own right and one of the world's largest exporters of fossil fuels. By slashing its domestic emissions, and using its natural advantages in renewable energy to support the global energy transition, Australia can play a major role in the world's response to the climate crisis.
- › The Climate Council has calculated that Australia should reduce its emissions by 75% (below 2005 levels) by 2030 and achieve net zero by 2035. As a first step, Australia should match the updated commitments of our key allies (including the US and the UK) and pledge before Glasgow to at least halve national emissions this decade.
- › To ensure this occurs, Australia needs a national plan to rapidly decarbonise our electricity and transport sectors, protect and restore our ecosystems, and support communities that are transitioning to new, clean industries.
- › Supporting climate action in developing countries is a critical component of international cooperation on climate change. Australia should follow the US in doubling its current climate finance contribution, and pledge to provide at least AU\$3 billion over 2021-2025 towards the shared international goal of providing US\$100 billion a year.

3

Australia is the worst performing of all developed countries when it comes to cutting greenhouse gas emissions and moving beyond fossil fuels.

- › Australia ranks dead last among comparable nations for addressing the climate challenge at its source – by cutting emissions.
- › Australia is a fossil fuel giant, with coal and gas industries that are among the world's biggest drivers of climate change. The Climate Council's ranking system judges Australia as the equal worst performer among comparable nations for fossil fuel extraction and use, taking into account both exports and domestic consumption.
- › Emissions in the sectors that matter most have increased in Australia. For example, electricity emissions have increased by around a third since 1990, while transport emissions have grown by more than half.
- › The Australian government is trailing state and territory governments, Australian businesses and investors, and the public who are all hungry for further climate action. Climate leadership from states and territories is showing us what works, and the many benefits that decarbonising our economy delivers.

4

There has been a rapid and irreversible shift in the global politics surrounding climate change. Australia is being left behind and must catch up if it is to reap the economic and geostrategic benefits of taking stronger action.

- › Climate change is now a strategic priority for the world's major powers including the UK, EU, US and China, as they race to gain advantage in the global energy transition. 2021 marks climate change moving to the centre of global geopolitics, with Australia's major allies and trading partners integrating this into their defence and strategic planning, foreign policy and diplomacy.
- › Almost all developed countries have substantially strengthened their 2030 targets ahead of Glasgow and have committed to net zero emissions by 2050. The Group of 7, consisting of the world's largest developed economies, has committed to at least halving its emissions this decade.
- › Australia is under unprecedented international pressure to strengthen its climate commitments. For the first time, Australia's traditional allies and closest security partners, as well as our neighbours, are universally and explicitly calling for Australia to lift its 2030 emission reduction target.
- › A commitment and plan for rapidly cutting our emissions this decade will unlock investment and create new jobs in renewable energy and clean industries; particularly in regional areas. With world-class renewable energy resources and enviable mineral reserves needed to drive the global energy transition, Australia has the potential to grow new export industries that far exceed the value of our current fossil fuel exports.

Foreword

The upcoming COP26 UN climate conference in Glasgow must secure serious collective action to address the climate crisis. Failure could spell the loss of entire low-lying Pacific nations, and we can only fail if we shrink from our responsibilities.

As this important new report from the Climate Council explains, we have reasons to be hopeful. Momentum for action is growing. Since the Fijian Presidency of COP23 in 2017, more than 100 countries have pledged to achieve net-zero emissions by 2050, and many wealthy nations have strengthened their Paris targets to cut greenhouse gas emissions by 2030.

That is the good news. The bad news is that these pledges are still insufficient. All countries—particularly the developed countries and the largest emitters—need to commit to reducing greenhouse gas emission by more than the current target of 50% by 2030, and they must commit to achieving net-zero status before 2050. All targets need to be strengthened and all timetables need to be advanced.

The latest UN synthesis report indicates that we are headed for 2.7°C of warming in this century, well above the *Paris Agreement's* 1.5°C threshold. In August, the Intergovernmental Panel on Climate Change set out the latest science, which made it clear that we are headed for a cataclysmic future of rising seas, super-storms, changing rainfall patterns, and ocean acidification. The future of planet Earth, the only home we have, is in serious jeopardy.

Pacific Island Countries have warned of the existential threat posed by climate change for decades, but the threat is not just for isolated villages or low-lying islands. All Pacific Island Countries including Australia, are threatened by the climate crisis. Indeed, we are already experiencing the devastating consequences of climate change. The wolf is not at the door anymore; it is in the house.

In the five years since the Paris climate talks, my country has been struck by a record-shattering streak of severe weather, including two Category-5 storms, Cyclone Winston in 2016 and Cyclone Yasa in 2020. Unprecedented in their strength, these storms obliterated whole communities and left thousands of homes damaged or destroyed. Australia, too, has suffered unprecedented hardship and destruction. The Great Barrier Reef has been hit by three mass bleaching events in the past six years, and Australia recorded its hottest and driest year on record in 2019, when it suffered a 'Black Summer' of catastrophic bushfires.

It's hard to ask for a more natural partner to Fiji than Australia. Australia's open hand of solidarity has lifted Fijians to their feet in the darkest of times, with cyclone relief, with resources and expertise, and, most recently, with life-saving COVID-19 vaccines. Now, we must all play our part in the collective effort to head off the climate crisis. Fiji is prepared to do ours. In September, we passed a ground-breaking and comprehensive Climate Change Act, legislation that makes action to address the climate emergency an integral component of the duties and processes of Government. It also requires the private sector to disclose

information on climate change risks, establishes national carbon budgets, and codifies our 2050 net-zero carbon emissions target in domestic law.

Today, we urge others to follow our example, and we earnestly urge our friends in Australia to be champions of climate action at Glasgow and beyond. In that light, I welcome commitments from all of Australia's state and territory governments. An especially welcome example was set by the New South Wales government with the announcement of an ambitious new commitment to halve emissions by 2030.

The fight against climate change is a fight for survival, for all of us. The time has come to take our shared struggle seriously. By the time leaders come to Glasgow at COP26, it should be with immediate and transformative actions that are achievable. Come with new commitments for serious cuts in emissions by 2030 – 50% or more. Come with commitments to become net-zero before 2050. Do not come with excuses. That time is past.



Frank Bainimarama
Prime Minister - Fiji

1. Introduction

"The choices we make in the year ahead will determine whether we unleash a tidal wave of climate catastrophe on generations to come. But the power to hold back that wave rests entirely with us." Alok Sharma, COP President-Designate, December 2020.

The climate crisis is the defining challenge of our time. Culminating at the UN Climate Change Conference in Glasgow in November (COP26), 2021 is a decisive year in the global response to this challenge. The latest science is abundantly clear – global emissions must plummet this decade to avoid climate catastrophe. For this to happen, every country, including Australia, must bring the most ambitious commitments and actions they can muster to COP26.



Figure 1: Alok Sharma, President of COP26.

Six years ago, the world reached The *Paris Agreement*, committing to avoiding climate catastrophe by limiting warming to well below 2°C and pursuing efforts to limit it to 1.5°C. This crowning achievement of multilateralism provided the framework for how to get there, with the actual contributions towards cutting global emissions determined at a national level. Unfortunately, the first round of national contributions fell woefully short of this target.

Now, the deadline for urgent action has arrived, and COP26 is the moment at which the world must close the gap between the current sum of national commitments and what is necessary to achieve the *Paris Agreement's* goals. As Fiji Prime Minister Frank Bainimarama says in our foreword “Come with new commitments for serious cuts in emissions by 2030 – 50% or more. Come with commitments to become net-zero before 2050. Do not come with excuses. That time is past.”

In the lead-up to COP26, there has been a rapid and irreversible shift in the global politics surrounding climate change. Almost all developed countries have committed to net zero emissions by 2050, and substantially strengthened their 2030 targets ahead of Glasgow, with major powers including the UK, EU, US and China racing to gain advantage in the global energy transition and even their defence planning.

Meanwhile, Australia remains a fossil fuel giant, with coal and gas industries that are among the world's biggest drivers of climate change. The Climate Council's latest assessment shows Australia remains the worst performing of all developed countries when it comes to cutting greenhouse gas emissions

and moving beyond fossil fuels. Australia is being left behind, and facing unprecedented international pressure from our allies, security partners and neighbours to do better.

It's not just the geostrategic benefits of taking stronger climate action - economically Australia has much to gain. A commitment and plan for rapidly cutting our emissions this decade will unlock investment, grow new export industries and create new jobs in our regions thanks to our world-class renewable energy resources and enviable mineral reserves.

To meet the goals of COP26, Australia must come to Glasgow with:

1. A substantially strengthened emissions reduction target for 2030, backed by a national plan to rapidly decarbonise our electricity and transport sectors, absorb more carbon in the land, and support the transition of communities to new clean industries. The science demands that Australia reduce its emissions by 75% (below 2005 levels) by 2030 and achieve net zero by 2035. As a first step, Australia must at least match the updated commitments from our key allies, and pledge to at least halve our emissions by 2030.
2. A new commitment of funding to support climate action in developing countries. As a first step, Australia should follow the US in doubling its current climate finance contribution, and pledge to provide at least AU\$3 billion over 2021-2025 (see section 4.3 on climate finance).
3. A commitment to immediately end public funding for coal, oil and gas.

As we head towards crucial negotiations in Glasgow, this report takes stock of the world's response to the climate crisis and what Australia needs to deliver if it is to play its part in protecting future generations and realise the economic benefits of stronger action.

Chapter 2 provides a brief recap of the latest science that must guide countries in formulating their new and strengthened commitments. It also looks at the extraordinary run of climate-fuelled disasters that has formed the backdrop to COP26.

Chapter 3 summarises the rapid evolution in the global politics of climate change since Paris and in particular, at how Australia's allies and trading partners are stepping up.

Chapter 4 reviews the Australian Government's spin and provides an objective take on how Australia's policies and actions really fare alongside other wealthy developed countries.

Finally, Chapter 5 emphasises Australia's immense untapped potential to be a global leader in climate solutions and outlines the commitments that the Australian Government should take to Glasgow.

What Australia does today matters. The decisions Australia makes about our future energy mix and our emissions reduction commitments will significantly affect the lives of Australians today, and the world that our future generations will inherit. Our best shot at a brighter and more secure, equal, dignified and prosperous future for Australians and communities everywhere means throwing everything we've got at it.

Australia has a long way to go to catch up to its global peers on climate action.

2. The urgent challenge

Three months out from Glasgow, the Intergovernmental Panel on Climate Change (IPCC) issued the most important and authoritative update on the physical science of climate change to date (IPCC 2021). The report – the first instalment of the IPCC's Sixth Assessment Report – shows that there is still a narrow path to avoiding climate catastrophe, but only through immediate, deep and sustained emissions reductions. It affirmed that our actions this decade will be the difference between a liveable future for today's young people, and a future that is incompatible with well-functioning human societies (Climate Council 2021a).

The report showed that the impacts of climate change are already being felt around the world – a conclusion borne out by an extraordinary run of extreme weather events in the year leading up to Glasgow.

July 2021 was the Earth's hottest month on record (NOAA 2021). Many countries in the northern hemisphere experienced record-breaking heatwaves, fires and floods. The extreme summer showed that even the world's wealthiest countries are being heavily impacted by climate change. The western United States and parts of Canada suffered through a historic drought and deadly heatwaves that saw temperature records broken by extraordinary margins. The extreme heat was deemed virtually



Figure 2: Greece suffered horrific wildfires in August 2021.



Figure 3: Flooding of the Elz river in Monreal, Germany, July 2021.

Figure 4 (Right): Athens with smoke cloud on 5 August.



impossible without human-caused climate change (Philip et al. 2021). On the other side of the Atlantic, hundreds died and thousands were displaced by flooding in Germany after extreme rainfall, which again broke records by large margins (Kreienkamp et al. 2021). Meanwhile, Greece and Italy suffered through horrific wildfires, contributing to by far the worst July for wildfires on record in terms of tonnes of carbon released (Watts 2021).

Closer to home, in January Fiji suffered its second devastating cyclone in a month after Cyclone Ana followed in the wake of deadly category 5 Cyclone Yasa (Chanel 2021). In February, tens of thousands of people were displaced by severe flooding in Java, Indonesia (Lee 2021). In March, rainfall records tumbled in many parts of New South Wales, causing widespread flooding (BoM 2021). In June, a freak storm ravaged Victoria's Dandenong Ranges, leaving some homes without power for several weeks (Taylor 2021).

In the eight years since the IPCC's Fifth Assessment Report, which provided the main scientific input to negotiations on the *Paris Agreement*, there have been major advances in our understanding of how climate change is affecting the severity and/or frequency of extreme weather events, from heatwaves and droughts to floods and storms:

- › It is now virtually certain that heatwaves have become more frequent and intense, with human-caused climate change the dominant driver (IPCC 2021).
- › The frequency and intensity of heavy rainfall events has increased (IPCC 2021).
- › It is likely that the proportion of extremely destructive cyclones (reaching category 3-5 strength) has also increased (IPCC 2021).
- › As the frequency and/or intensity of destructive weather events has increased, so too has the likelihood of multiple extreme events occurring concurrently or in quick succession in a given place, compounding one another to create an even greater disaster (IPCC 2021).

Most worryingly, the latest IPCC report showed that many more impacts of climate change are on the way due to our past inaction and the inertia in the climate system. Sea levels will continue to rise over this century and beyond. The water cycle will continue to become more intense and more erratic, bringing greater dangers from floods and droughts. Heatwaves will become more extreme, claiming more lives in Australia and worldwide.

We have reached the climate endgame. Our efforts today will be measured in lives, livelihoods, species and ecosystems saved, and in new jobs and prosperity.



Figure 5: Alok Sharma (left), Boris Johnson (centre) and John Kerry (right) have been on a year of intensive climate diplomacy in the lead-up to COP26.

However, strong action this decade will mean a future in which we have a chance to adapt and in which we can continue to thrive. The science could not be clearer: every choice and every fraction of a degree of avoided warming matters. Failure to limit warming to well below 2°C increases the chance of crossing tipping points in the Earth System that would lead to abrupt and irreversible changes, pushing humanity into even more dangerous territory (Climate Council 2021b). The latest IPCC report shows that we can limit warming to 1.5°C in the long-term (by the end of the century), albeit












with a small and temporary overshoot,¹ thereby giving vulnerable communities and critical ecosystems a chance of survival. This requires every country to bring their maximum possible ambition to the table. The moment demands that Australia thinks beyond 'doing its bit', and instead starts giving its very best.

"At the COP in November, all nations must raise ambition together – or we will all fail, together. Failure is not an option."
John Kerry, US Special Presidential Envoy for Climate, January 2021.

¹ The very low greenhouse gas emissions scenario used by the IPCC, known as SSP1-1.9, provides a pathway to limiting warming to 1.5°C with only a small and temporary overshoot. However, in addition to reaching net zero emissions globally, this scenario requires a large and increasing amount of greenhouse gases to be drawn down from the atmosphere during the second half of the twenty-first century and beyond. Many options exist for drawing carbon down from the atmosphere, including: restoring forests and other ecosystems; speeding up processes of carbon mineralisation through which carbon dioxide turns from a gas to a solid; direct air capture, through which carbon dioxide is chemically scrubbed from the air and then stored either underground or in long-lived products like concrete; and Bio-energy with Carbon Capture and Storage (BECCS), though which biomass is used for energy and the emissions are then captured and stored. However, at present we do not have the technologies to achieve anything close to the amount of drawdown that would be required. Moreover, many techniques involve significant trade-offs. For example, using land to grow biomass for fuel reduces the land available to grow food. This report does not look at the challenges and opportunities of drawdown. However, Climate Council recognises that it will be increasingly important in meeting the goals of the Paris Agreement and is an area requiring much further research.

3. World on the move

Figure 6: Key climate commitments from Australia's traditional allies and biggest trading partners, and their implications for Australia.

	UNITED STATES	UNITED KINGDOM	EUROPEAN UNION	JAPAN	CHINA	INDIA
						
Target 	50-52% cut in emissions (from 2005 levels) by 2030	68% cut in emissions (from 1990 levels) by 2030	55% cut in emissions (from 1990 levels) by 2030	46% cut in emissions (from 2005 levels) by 2030	Peak emissions by 2030. 60-65% cut in <i>emissions intensity</i> (from 2005 levels) by 2030	33-35% cut in <i>emissions intensity</i> (from 2005 levels) by 2030
Electricity 	100% clean electricity by 2035	100% clean electricity by 2035	40% of electricity from renewable energy by 2030	60% non-fossil fuel sources of electricity by 2030 (36-38% renewables)	25% non-fossil fuel sources of electricity by 2030. Install 1,200GW of renewable energy by 2030	40% clean electricity by 2030. Install 450GW of renewable energy by 2030
Transport 	50% of new vehicles zero emissions by 2030	New petrol and diesel cars banned by 2030 ²	No sale of new petrol and diesel vehicles by 2035 ³	No sale of new petrol and diesel vehicles by 2035 ⁴	No sale of new petrol and diesel vehicles by 2035 ³	30% of new vehicles to be electric by 2030
Net Zero 	By 2050	By 2050	By 2050	By 2050	By 2060	-
Impact on Australia 	Australia's key security ally, has integrated climate into foreign policy and hopes for ambitious climate targets from Australia.	Host of COP26, has called on Australia to bring a stronger 2030 target to Glasgow.	Plans to introduce carbon border measures which will impose significant costs for select Australian exports. ⁵	Australia's largest destination for fossil fuel exports, climate targets will impact prospects for coal and gas exports.	Australia's largest trading partner, climate targets will have impacts for fossil fuel and iron ore exports.	India's energy transition is an opportunity for Australian critical minerals exports and collaboration in production of batteries.

² Hybrids still allowed until 2035, and petrol and diesel heavy vehicles until 2040.

³ De facto ban, including hybrids.

⁴ Hybrids still allowed.

⁵ For more detail, see Climate Council report '[Markets are Moving: The Economic Costs of Australia's Climate Inaction](#)' by Nicki Hutley.

3.1 The new global politics of climate change

"Climate change is realpolitik. It's a diplomacy issue, a security issue, a trade issue. And in years to come, the only great powers will be green powers." UK Prime Minister, Boris Johnson, September 2021.

The years since Paris have seen a rapid and irreversible shift in the global politics of climate change. Climate policy has become a strategic priority for major powers as they race to lead the global energy transition. Australia's federal government – reluctant to acknowledge and embrace this upheaval – is being left behind.

For decades, UN climate negotiations remained mired in debate and recriminations over who should bear the costs. Developing countries held firm that wealthy nations – who have benefitted from centuries of fossil-fuelled economic growth – have an obligation to move first. Wealthy nations meanwhile remained reluctant to take on obligations seen as an impost for their economies. However, as the cost of renewable energy has plummeted, and as countries have increasingly seen their security threatened by climate change, so too the politics is being upended.

After a bumpy start following the temporary US withdrawal under President Trump, the years since the landmark *Paris Agreement* have seen a dramatic acceleration in climate action globally. More than 100 countries have committed to achieving net zero emissions by 2050 or are considering it (Energy and Climate Intelligence Unit, 2021). When the last UN climate talks were held in Madrid in 2019, countries representing only around a quarter of the global economy had set a firm date for achieving net zero emissions. Today, that figure is more than two thirds (Black et al. 2021).



Figure 7: British Prime Minister Boris Johnson at Climate Ambition Summit 2020.

These political commitments have been accompanied by a major redirection of global investment away from fossil fuels and into the green economy of tomorrow. Major finance houses are divesting from the dirtiest of fossil fuels. Earlier this year the head of BlackRock – the world's largest asset manager, in charge of \$7 trillion in investment – wrote to hundreds of global chief executives, explaining climate change is driving a significant reallocation of capital and outlining plans to exit thermal coal (Fink 2021). In September, 587 investors, worth US\$46 trillion in assets under management, urged governments to rapidly implement five priority policy actions, including strengthened national emissions reduction targets and ending fossil fuels subsidies, which would in turn enable trillions of dollars of investment in climate solutions (IGCC 2021). Over the past five years, we have seen the rise of 'new energy giants' – renewable energy utilities that now rival major oil companies in value (Blunt and McFarlane 2020). The International Energy Agency – a relatively conservative global authority on energy – expects renewable electricity will become the largest source of generation in the next decade, overtaking coal and ending the fossil-fuel domination of electricity (International Energy Agency 2020).



Figure 8: Wind and solar farm in Austria.

Since the last UN climate talks in 2019, the number of countries to set a firm date for achieving net zero emissions has jumped from around a quarter to more than two thirds. This includes the UK, US and Japan.



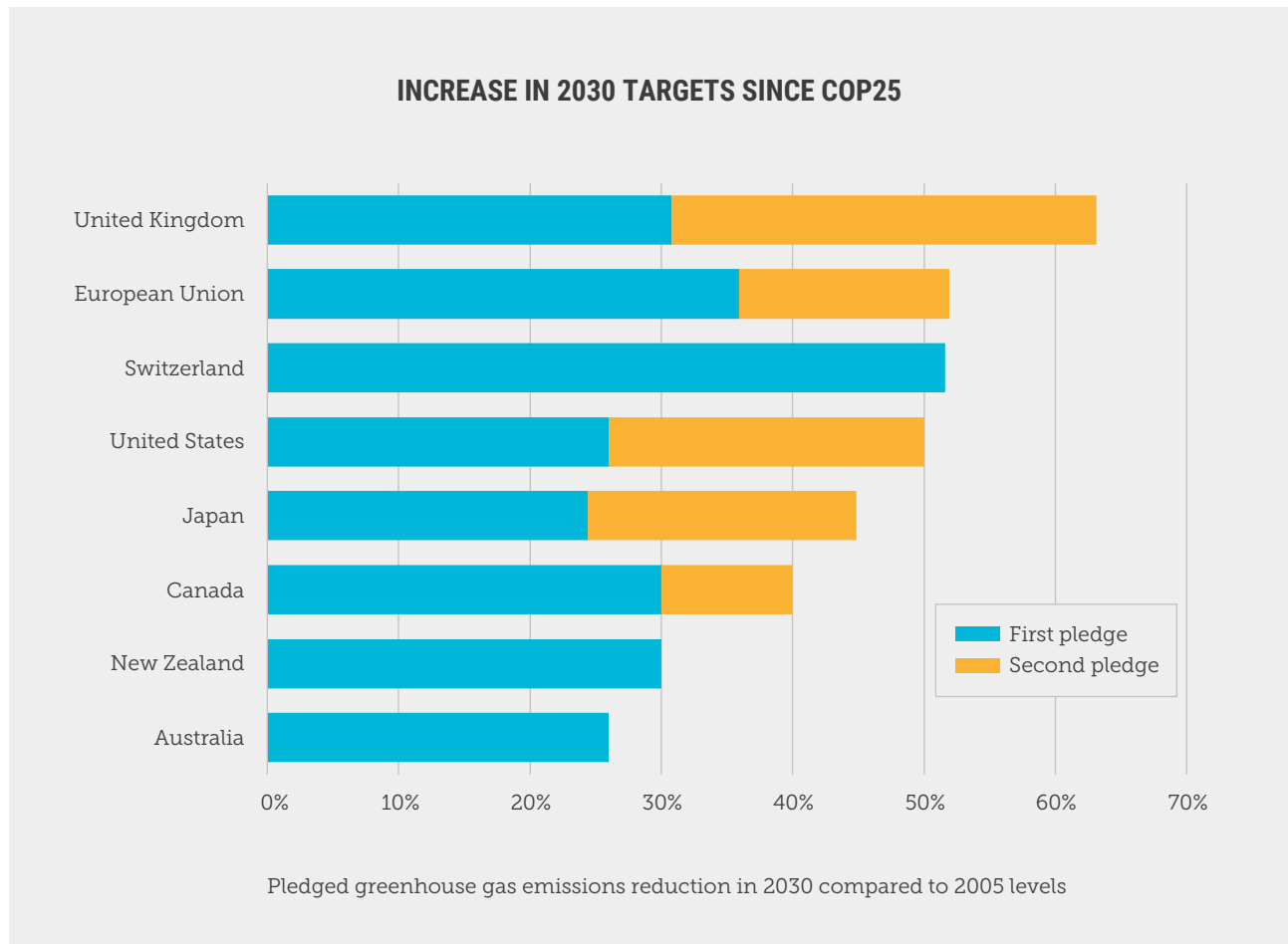
Figure 9: US President Joe Biden and Vice President Kamala Harris talking during virtual Quad Summit with Australia, India and Japan in March 2021.

Climate change has also moved to the centre of global geopolitics, as countries work to seize the economic and political advantages of leading the race to net zero emissions, and also become increasingly aware of the security implications of climate change. Countries are integrating climate into their defence and strategic planning, their foreign

policy, diplomacy and statecraft. Climate is now central to relations between the United States and China, the world's 'carbon titans'. Both Beijing and Washington have a shared interest in global action to reduce emissions. In April the US and China issued a joint statement that they would cooperate to tackle the climate crisis (State Department 2021a).

Major powers like the EU and the US are racing to take advantage of the substantial economic and geopolitical opportunities associated with the global energy transition – while Australia is being left behind.

Figure 10: Countries are expected to come to the UN climate talks in Glasgow with more ambitious national targets under the Paris Agreement. Most of the world's advanced economies already have new commitments to reduce emissions over the next decade, and to achieve net zero emissions by mid-century.



Notes: The United Kingdom's initial pledge to reduce emissions to 40% below 1990 levels by 2030 was made as part of the EU-wide pledge. The United States' first pledge had a target year of 2025, so is not perfectly comparable to others shown. Japan's revised pledge, made at the Leaders Summit on Climate in April 2021 has not yet been formalised in an updated Nationally Determined Contribution (NDC). New Zealand has announced that they will increase their pledge ahead of COP26, but at time of publication is yet to do so. Australia's headline emissions reduction of 26% below 2005 levels by 2030 relies heavily on historical land use changes not accounted for by other nations. If assessed on like terms to other nations, the target is a 9% reduction on 2005 levels by 2030.

While there is no doubt the world is shifting fast, a lot more is needed. Even with around 100 countries submitting new or updated *Paris Agreement* targets, global emissions may still rise by over 16% by 2030, which would put the planet on a pathway for 2.7°C warming this century (UN Climate Change 2021). More ambition is needed from almost all countries, with national policies to meet their pledges and ensure emissions plummet this decade.

Nonetheless, in a world rapidly on the move, Australia is being left behind. As trading partners work to accelerate their energy transitions, Australia's fossil fuel exports are set to decline rapidly (Kemp et al. 2021).

Policymakers in Canberra need to plan for an inevitable transition, and to support communities that will be impacted most. As explored in Chapter 5, Australia has all the resources needed to thrive in a post-carbon world and the opportunity to build vibrant new industries including green steel, renewable hydrogen, and the export of minerals needed for the clean energy revolution. To seize opportunities in a world on the move, Australia needs an ambitious target to cut emissions this decade, supported by a comprehensive federal policy framework. As other countries race to net zero, Australia is barely out of the starting blocks.

Australia has all the resources needed to thrive in a post-carbon world but first we need more ambitious targets this decade and a comprehensive federal climate policy.

3.2 Australia's more ambitious allies

Australia's traditional allies are committing to ambitious climate action over the next decade (Figure 6), investing heavily in green infrastructure and green industrial policy, and using carbon pricing or other regulatory frameworks to encourage a shift away from fossil fuels. They are also promoting a rapid expansion of renewable energy, and encouraging the shift to electric vehicles.

THE UNITED STATES OF AMERICA

"Making these ambitious investments isn't just good climate policy, it's a chance for each of our countries to invest in ourselves and our own future. It's an enormous opportunity to create good-paying jobs for workers in each of our countries and to spur long-term economic growth that will improve the quality of life for all of our people."
President Joe Biden, September 2021.

Figure 11: USA wildfire briefing as the climate change-fuelled devastating wildfire season was unfolding in 2021.



Following the election of Joe Biden as president, and keen to assure the world it is committed to multilateral cooperation, the US moved quickly to play a lead role in global climate diplomacy. On day one of his presidency, Biden re-joined the *Paris Agreement*, and put the climate crisis “at the centre of US foreign policy and national security” (White House 2021a). Biden quickly leveraged US diplomacy to galvanise global climate action. He appointed former Secretary of State John Kerry as Special Presidential Envoy for Climate, and elevated the position into the National Security Council. In April, Biden brought together leaders of the world’s major economies for a Leaders Summit on Climate, where he announced a new 2030 target for the US to reduce emissions by 50-52% compared to 2005 levels. The EU and other wealthy nations, including the UK, Japan and Canada, followed suit by announcing new commitments to reduce emissions over the next decade.

At home, the Biden administration is moving to implement an ambitious climate agenda. A multi-trillion-dollar package of infrastructure investment is making its way through Congress. The package will see investments to electrify America’s buses, including the yellow school bus fleet, and the construction of a network of electric vehicle chargers across the country. This infrastructure will support the goal of ensuring half of all new vehicles sold in the US by 2030 will be zero emissions vehicles. Infrastructure spending will also be directed toward transmission lines and power infrastructure to support Biden’s goal of achieving 100% clean electricity by 2035. US lawmakers are also considering the imposition of a carbon border tax, to be levied on imports from high-polluting countries.

THE UNITED KINGDOM

After leaving the EU, Britain has looked to reposition as a global leader in its own right, and has sought to shape multilateral cooperation on climate change as part of a broader ‘Global Britain’ strategy. Following a review of UK foreign policy early in 2021, Prime Minister Boris Johnson declared tackling climate change would be the country’s number one international priority (UK Government 2021). The UK has sought to ‘lead from the front’ on climate. In 2019, the UK was the first major economy to legislate a net zero emissions 2050 target, and this year the UK has set one of the world’s strongest emissions reduction targets, pledging to slash emissions by at least 68% below 1990 levels by 2030.

The UK is host of the UN climate negotiations at a critically important time, and will want to secure a legacy from the COP26 summit in Glasgow. As host, the UK is calling on all countries to bring ambitious 2030 targets that align with reaching net zero by the middle of the century. The UK has used its global diplomatic network to press wealthy countries to make good on promised climate finance to help developing countries respond to climate change, which is seen as key to an ambitious outcome at COP26. The UK – which launched the Powering Past Coal Alliance in 2017 – hopes COP26 will accelerate a global phase out of coal.

At home, the UK has released a Ten Point Plan for a 'green industrial revolution' (UK Government 2020). Britain has all but completely phased out domestic coal-fired power, and has become the world's largest producer of offshore wind energy. Conservative prime minister Boris Johnson argues the UK can become 'the Saudi Arabia of wind power', exporting renewable energy abroad to power the economies of Europe (Rincon 2020). The UK was one of the first countries to set a target for banning petrol and diesel cars. By 2030, the sale of new petrol and diesel cars will be prohibited in Britain.

The UK has pressed Australia to bring a new, more ambitious climate target to COP26. In late 2020, when Boris Johnson hosted a Climate Ambition Summit – to mark five years since the conclusion of the *Paris Agreement* – Australian Prime Minister Scott Morrison was refused an invite. Johnson wrote to Morrison following the snub, explaining that "you will understand that we have tried to set a high bar for this summit to encourage countries to come forward with ambitious commitments" (Harris 2021).

Figure 12 (Top): An offshore wind farm in the UK - now the world's largest producer of offshore wind energy. **Figure 13 (Bottom):** Prime Minister Scott Morrison was refused an invite for the Climate Ambition Summit in December 2020.



THE EUROPEAN UNION

"Climate action is also a massive opportunity for our economies. It creates new markets. It mobilises investment in new and transforming industries, and it unleashes innovation for a healthier and more prosperous future. ...The fight against climate change will be the engine for our global recovery." President of the European Commission, Ursula von der Leyen, April 2021.

The EU has long been recognised as a leader in global climate action. The multi-trillion-dollar Green Deal is supported by a legislation package aimed at slashing emissions by 55% below 1990 levels by 2030. Elements of the package include support for renewable energy and a proposal that would effectively ban petrol and diesel-powered cars by 2035. The EU has also moved to integrate climate goals into all external diplomacy, and has published a new Climate Change and Defence Roadmap.

The EU has a mature emissions trading scheme, which puts a price on carbon within the European market, and is now moving to

integrate climate goals into trade policy as well. As part of its plans to slash emissions this decade, the EU is working towards a Carbon Border Adjustment Mechanism (CBAM) that will impose a levy on imports of carbon-intensive goods, intended to match the carbon price imposed on domestic products. It is expected that these measures will have some impact on Australian exports to Europe (Climate Council 2021c). The EU has also included climate objectives in trade negotiations. In current talks for a trade deal with Australia, Brussels has repeatedly raised the "importance of the effective implementation of the *Paris Agreement*" (Shields 2020). Some members of the European Parliament have even threatened to withhold ratification of a new trade deal without new climate action from Australia (Besser 2021).

Like other friends and allies, the EU is hoping Australia will bring more to COP26. The EU ambassador to Canberra has suggested Australia should increase its 2030 emissions reduction pledge. Ambassador Dr Michael Pulch said countries should take stock of whether they were "in a better position than, say, five years ago to have a more ambitious climate objective" (Hurst 2021).

Figure 14: G7 meeting in France in 2019.



3.3 Net zero Asia

The last two years have seen a run of positive announcements across Asia including commitments to net zero emissions, ramping up of renewable energy schemes, and plans to move beyond coal. While positive for the global energy transition these changes remain short of the pace of action necessary to achieve the goals of the *Paris Agreement*.

On 22 September 2020, President Xi Jinping told the UN General Assembly that China would aim to have its carbon dioxide emissions peak before 2030 and achieve net zero emissions before 2060. More recently, China announced that it would end overseas financing of coal projects, eliminating around 40 GW from the global coal pipeline (Littlecott et al. 2021). Japan and South Korea have both pledged to reach net zero emissions by 2050, and have also announced

commitments to end coal finance. Japan has also significantly strengthened its 2030 emissions reductions target. In 2020, Pakistan's Prime Minister, Imran Khan, announced that no new coal fired power plants in Pakistan would be approved.

CHINA

"We need to ride the trend of technological revolution and industrial transformation, seize the enormous opportunity in green transition, and let the power of innovation drive us to upgrade our economic, energy and industrial structures, and make sure that a sound environment is there to buttress sustainable economic and social development worldwide." President Xi Jinping, April 2021.

Figure 15: Installation of solar panels on the roof of the Hongqiao Passenger Rail Terminal in Shanghai, China.



China is currently the world's largest consumer of coal, and coal consumption continues to grow. At the same time, renewables are growing at a faster rate than coal in China, and the coal pipeline in China has shrunk dramatically since the *Paris Agreement*.

Coal capacity in China increased in 2020, with 38.4 GW of new coal plants constructed, comprising 76% of the global total (50.3 GW) and driving a 12.5 GW increase in the global coal fleet (Global Energy Monitor et al. 2021). This resulted in the first increase in global coal capacity since 2015. China currently has an additional 88.1 GW of coal fired power under construction, which equates to around 53% of global coal power under construction (Global Energy Monitor et al. 2021; Littlecott et al. 2021). Another 163 GW is proposed for construction, which is equivalent to around 55% of plants in the global pre-construction pipeline (Littlecott et al. 2021). China has, however, seen a 74% reduction in its coal pipeline since the *Paris Agreement*, with 484 GW cancelled (Littlecott et al. 2021).

In the decade to 2018, China's use of renewable energy (excluding hydroelectric power) grew 33% per year, while coal use grew at 1.7% per year, well below growth in GDP (Golden 2020). China's 14th five year plan (2021-2025), which set a target for non-fossil fueled energy to grow from 16% to 20% of total energy consumption, will likely mean that coal will continue to grow through 2025 in China (Global Energy Monitor et al. 2021). However, at the Leaders Summit on Climate convened by US President Joe Biden in April 2021, President Xi announced that China will strictly control its coal growth until 2025 and then phase down coal consumption during the 15th five year plan (2026-2030) (Huaxia 2021). The National Energy Administration expects that two thirds of additional capacity over the next five years will come from renewable energy. China has also committed, as part of its Nationally Determined Contribution to the *Paris Agreement*, to install 1,200 GW of renewable energy by 2030. If solar and wind installations continue at the pace they have over recent years, this target will be reached or exceeded over the decade.

Figure 16: Tangshanpeng Wind Farm in Shandong Province, China.



China is already the world's largest investor, producer and consumer of renewable energy. Its existing shift towards renewables has been a key factor behind the rapid decline in the cost of solar and wind technologies over the last decade. China already produces 70% of the world's solar panels, half of all electric vehicles and a third of all wind turbines (Hook and Sanderson 2021).

President Xi continues to reiterate the aim for China to peak emissions before 2030 and reach net zero emissions by 2060. China also has a record of progressively strengthening its commitments and bringing forward its goals. So whilst actions on the ground are not yet fully aligned with China's pledges, the transition to renewable energy is well underway in China, and there is reason to expect that this will accelerate in the coming years.

JAPAN

"Responding to climate change is no longer a constraint on economic growth.... We need to change our thinking to the view that taking assertive measures against climate change will lead to changes in industrial structure and the economy that will bring about great growth." Prime Minister Yoshihide Suga, September 2020.

Japan, the top buyer of Australian fossil fuels, has substantially strengthened its commitments to climate action over the last year. Already committed to net zero emissions by 2050, in April 2021 Japan announced a strengthening of its 2030 emissions reduction target to 46% below 2013 levels, with the possibility of reaching 50% – a significant increase on its earlier commitment of 26%.

Most recently, Japan announced a revision of its draft energy plan for 2030, increasing the share of renewable energy and dramatically reducing the role of coal and gas. Under this plan, coal's share in the country's energy mix is expected to fall by 40% and liquified natural gas (LNG) is expected to fall by almost half. These commitments pose a major challenge to the outlook for Australia's coal and gas export industries (Toscano and Foley 2021). In June this year, Japan also joined all G7 countries in agreeing to end government support for new coal power by the end of 2021.

INDIA

"Despite our development challenges, we have taken many bold steps on clean energy, energy efficiency, afforestation and biodiversity." Prime Minister Narendra Modi, April 2021.

India may well be on the verge of shrinking its coal fleet. India has pledged under the *Paris Agreement* to lower its emissions intensity (that is, emissions per unit of GDP) by 33-35% compared to 2005 levels by 2030, and to increase electricity generation from fossil-free energy sources to 40% by 2030. The commissioning of new coal power plants in India has fallen continuously since 2016, and shows no signs of rebounding (Global Energy Monitor et al. 2021). Between 2015 and 2020, proposed new coal capacity decreased from 238.2 GW to 29.3 GW, representing a reduction of almost 90%. The coal capacity under construction in India has also shrunk from 71.4 GW in 2015 to 36.6 GW in 2020 (Global Energy Monitor et al. 2021).

Demand for coal power has been much lower than expected in India, resulting in most of India's operational coal fleet running at full capacity only 60% of the time for the last few years (Global Energy Monitor et al. 2021). Meanwhile, the cost of renewables has continued to reach record lows (Scully 2020). India remains heavily reliant on coal-fired power, and the latest National Energy Policy sees a continuing role for coal. However, it is clear that the economics of coal in India has shifted. India has reached a turning point where renewables are cheaper than new coal, and in many situations, cheaper than existing coal (Scully 2020).

OTHER COUNTRIES OF ASIA

The pipeline of coal power stations under construction in many countries of south and southeast Asia saw a collapse in 2020. Countries including Bangladesh, the Philippines, Vietnam and Indonesia may be seeing their last new coal power stations, as plans were announced to cut up to 60 GW in planned coal power. It is estimated that this will leave only 25.2 GW in pre-construction planning across these four countries, representing a decline of 80% compared to 2015 (Global Energy Monitor et al. 2021).

By setting a date for net zero emissions, major countries across Asia have effectively called time on the fossil fuel industry. The new commitments that have been made will require massive investment, which is

likely to see further declines in the price of renewable energy worldwide and a surge in innovation across other renewable industries including renewable hydrogen and renewable manufacturing. These commitments will also mean a significant reduction in demand for Australia's fossil fuel exports, with China, South Korea and Japan alone accounting for two-thirds of Australia's fossil fuel exports (Kemp et al. 2021).

As for the majority of the world, commitments to net zero across Asia, while a potential gamechanger for the global energy transition, remain significantly short of the pace of action necessary to limit warming to well below 2°C. The actions and pledges of many countries across Asia remain ranked as 'Highly Insufficient' by Climate Action Tracker (2021a).

Major countries across Asia have effectively called time on the fossil fuel industry, signalling a significant reduction in demand for Australia's fossil fuel exports.

3.4 The view from the Pacific

"By the time leaders come to Glasgow at COP26, it has to be with immediate and transformative action....Come with commitments for serious cuts in emissions by 2030 – 50% or more. Come with commitments to become net zero before 2050. Do not come with excuses. That time is past." Pacific Islands Forum Chair, Fiji Prime Minister Frank Bainimarama, August 2021.

Australia's Pacific neighbours are clear about what must happen at COP26 in Glasgow. Limiting global warming to 1.5°C is key to the survival of low-lying atoll nations and citizens. To keep 1.5°C alive, Pacific leaders

want to see all nations come to Glasgow with new commitments to dramatically reduce emissions over the next decade (Pacific Islands Forum 2021a). Pacific leaders have also repeatedly called for a global phase out of coal-fired power, and will be working with the UK, as host country, to help ensure COP26 "consigns coal to history" (Chestney 2021). Island leaders also want delivery on promised financial support to help build resilience and adapt to climate change impacts (Pacific Islands Forum 2021b).

Pacific Island Countries are particularly vulnerable to the impacts of a warming world, including more intense cyclones, changing rainfall patterns, coral bleaching, ocean acidification, sea-level rise and coastal inundation (IPCC 2014; BoM 2014). These impacts are already being felt throughout the region. As the ocean warms, it is increasing the destructive power of Pacific cyclones. In the past five years, category 5 cyclones have devastated Vanuatu, Fiji and Tonga, leaving tens of thousands of people in emergency shelters, decimating food crops and crippling infrastructure (Climate Council 2020a; Climate Council 2021d). These events have a disproportionate impact for island economies, which can take years to recover from a single storm (Thomas et al. 2017), with worse to come. For low-lying countries like Kiribati, Marshall Islands and Tuvalu, sea-level rise threatens their very existence (Storlazzi et al. 2018). Risks related to sea-level rise include not only erosion and flooding, but also salinisation of the fragile freshwater lenses that constitute the main source of freshwater for these atoll nations, and other atoll communities in the Pacific. Climate change will also alter rainfall patterns, causing less rainfall in some areas and more rainfall in other areas – but in shorter and more intense bursts – exacerbating water insecurity.

Figure 17: Pacific Island Countries are on the frontline of climate change. Wave spilling over a seawall on South Tarawa, Kiribati.



Working as a coalition of nations, Pacific Island Countries have long had a significant positive influence on UN climate negotiations. The first draft of the Kyoto Protocol was put forward by Nauru (Moses 2013). Pacific diplomacy was also crucial for the 2015 *Paris Agreement*, with the late Marshall Islands Foreign Minister Tony De Brum leading the High Ambition Coalition – an initiative eventually comprising more than 100 countries and which played a key role in securing a successful outcome (Morgan 2021). Importantly, determined diplomacy by Pacific Island Countries helped secure the 1.5°C goal within the *Paris Agreement*. This diplomacy also ensured the Agreement included an article on addressing loss and damage from climate change – an issue of great importance to the Pacific and on which it will be seeking further progress at COP26, in particular on the provision of additional financial support.

Pacific Island Countries also helped the international community to understand climate change as a key security threat, an issue now firmly on the UN agenda. When the UN Security Council first debated the security impacts of climate change in 2007, Pacific diplomats argued the impacts of climate change were “no less threatening than the dangers guns and bombs posed to large nations” (UN Security Council 2007). Pacific Island countries also sponsored the first UN General Assembly resolution on climate change and security (Manoa 2021). A UN ‘Group of Friends on Climate and Security’ was established by Nauru and Germany in 2018. Since then, UN Security

Council debates on climate change and security have been held each year. Major powers are now using similar language on climate and security to that which Pacific leaders have used for decades. In February, UK Prime Minister Boris Johnson told the UN Security Council “it is absolutely clear that climate change is a threat to our collective security and the security of our nations” (Goering 2021). US Special Presidential Envoy for Climate John Kerry told the UN Security Council that failing to address climate change was “marching forward to what is tantamount to a mutual suicide pact” (State Department 2021b).

Pacific leaders have declared climate change is the “single greatest threat” to the region (Pacific Islands Forum, 2018). They want to see all countries making stronger commitments to reduce emissions. As Fiji Prime Minister Frank Bainimarama, the current chair of the Pacific Islands Forum, has explained: “strong commitments will make strong friendships” (O’Malley 2021a).



See Climate Council report [‘Rising to the Challenge: Addressing Climate and Security in Our Region’](#) which outlines the relationship between climate and security and the significant risks within our region that could be realised in the future.

Pacific Island Countries, highly vulnerable to the impacts of a warming world, are working together to drive international solutions.

Australia can strengthen its position as security partner of choice for island states by committing to stronger climate action for the next decade.

Pacific leaders want wealthy countries to phase out their use of coal by 2030, and for all other countries to phase out coal by 2040. Toward that end, Pacific leaders have declared “there must be no expansion of existing coal mines or the creation of new mines” (Doherty, 2018). Pacific leaders are especially keen to see Australia – the largest and wealthiest member of the Pacific Islands Forum – move away from coal. Australia is one of the world’s largest coal exporters, and has subsidised an expansion of coal exports over the past decade. Pacific leaders have felt this as a personal affront. When Prime Minister Morrison joined his Fijian counterpart for dinner in Suva, Frank Bainimarama was blunt: “from where we are sitting,” he told Morrison, “we cannot imagine how the interests of any single industry can be placed over the welfare of Pacific peoples and vulnerable people the world over” (Dziedzic and Handley 2019).



Figure 18: Fiji Prime Minister Frank Bainimarama.

To give Pacific Island Countries the best chance of survival, Island leaders are calling for wealthy countries, including Australia, to end coal use by 2030.

4. How Australia stacks up

To provide a fair assessment of Australia's climate performance as we head towards Glasgow, the Climate Council has produced two new, original rankings that compare Australia with its peers. The first ranks wealthy developed countries on emissions reductions, taking account of both their pledges and their actual record in reducing emissions. Australia is ranked last among wealthy developed countries for its emissions performance and pledges. The second looks specifically at fossil fuel dependence, taking account of fossil fuel exports as well as domestic fossil fuel use. Australia ranks equal last among wealthy developed countries for its extraction and use of fossil fuels.

In the final part of this chapter we look briefly at Australia's contributions to international climate finance: support to developing countries with responding to climate change.

Australia is ranked last among wealthy developed countries for its emissions performance and pledges, and equal last for its extraction and use of fossil fuels.

BOX 1: RANKING METHODOLOGY

Our first ranking uses three indicators to gauge actual performance in reducing emissions: countries' emissions per person and emissions per unit of GDP in 2019, and the change in emissions since 1990. It uses two indicators to assess countries' pledges: the expected emissions per person in 2030 under each nation's current *Paris Agreement* contribution, which includes updated contributions announced ahead of Glasgow; and the relative change in ambition – on the same basis – between countries' initial contributions made ahead of Paris and new and stronger contributions that have been announced ahead of Glasgow.

Our second ranking looks at fossil fuel extraction and use, thereby accounting both for Australia's heavy use of fossil fuels domestically and the enormous volume of emissions produced when fossil fuels mined in Australia are burned overseas. Three indicators are used to rank countries on their fossil fuel exports: total fossil fuel exports in kilotonnes of oil equivalent (ktoe), the percentage change in fossil fuel exports since 1990, and net fossil fuel exports (total amount of fossil fuels exported

minus the amount imported). Two indicators are used to rank countries on their domestic use of fossil fuels: the amount of fossil fuels used per person, and the change since 1990 in the amount of fossil fuels used per person.

To ensure that Australia was compared to similar countries, this analysis chooses those countries that were listed in Annex I of the UNFCCC and that are also current members of the OECD. Like Australia, these countries bore additional obligations from the very first stages of international climate diplomacy, and are also wealthy, developed nations today. This same selection of countries is used throughout the report, including in Figure 7.

Further details of the methodology behind these rankings are provided online at this report's website.

4.1 Ranking of emissions performance and pledges

Australia is ranked last among wealthy developed countries for its emissions performance and pledges. Australia's very poor ranking results from its very high level of emissions per person, its weak target for 2030, failure to strengthen that target, and the fact that Australia's emissions had, until recently, remained on an upward trend once discounting emissions relating to land use.

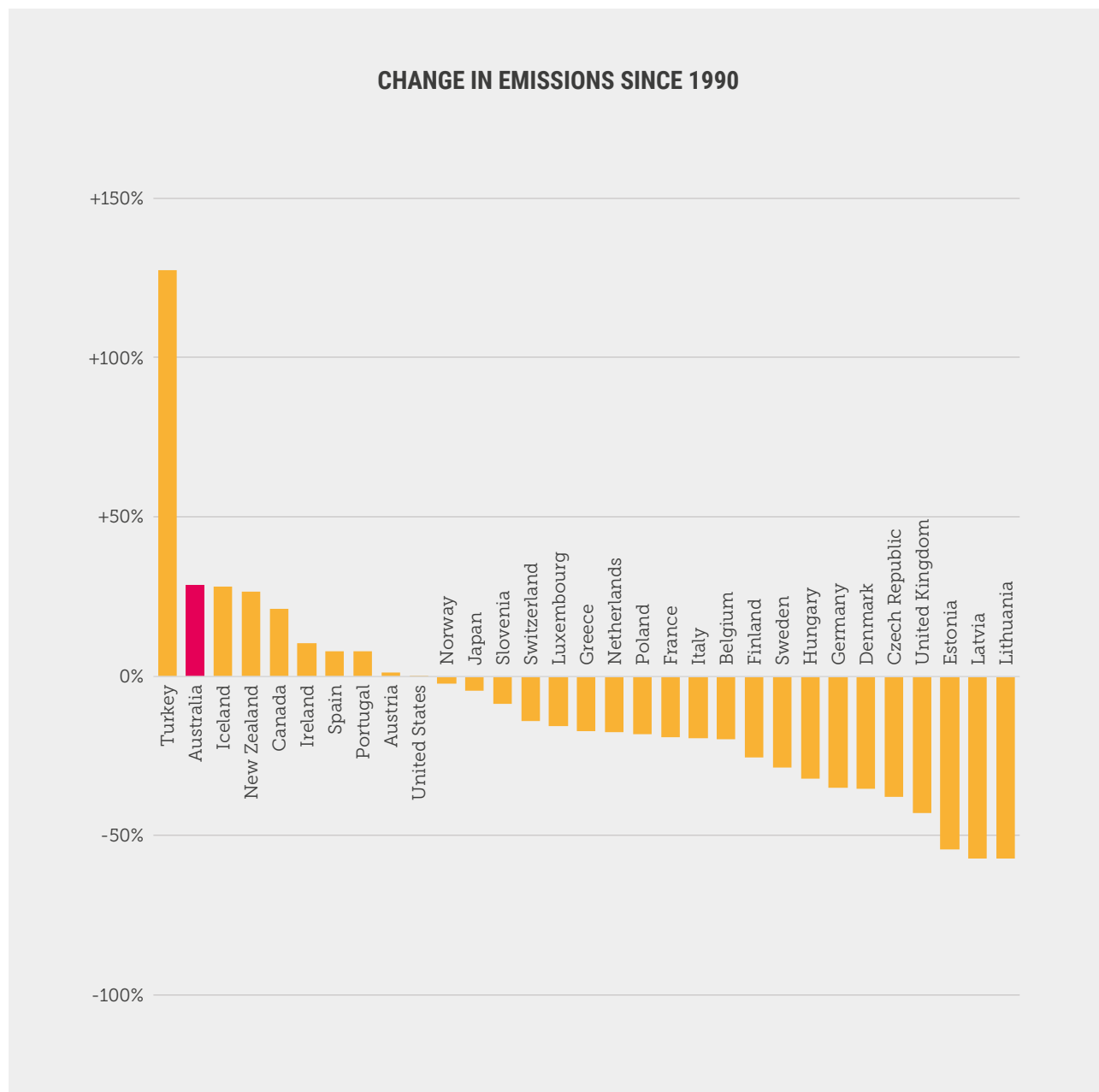
Figure 19: Despite Australia's poor track record at the federal level on climate action, the pressure is building on the federal government from many angles, including the grassroots.



Table 1: Ranking of wealthy developed countries on emissions performance and pledges. Overall, Australia is ranked last.

Emissions reduction performance and pledges								
Country	Change in emissions since 1990, score	2019 emissions per person, score	2019 emissions per unit of GDP	Emissions per person under 2030 target, score	Progression from first to current target, score	Overall score	Overall rank (out of 31)	Notes
Australia	2	1	1	2	2	8	31st	Calculations of emissions intensity do not include land use.
Austria	9	17	23	7	5	61	16th	EU
Belgium	21	12	16	7	5	61	16th	EU
Canada	5	3	2	3	28	41	27th	
Czech Republic	27	9	7	7	5	55	19th	EU
Denmark	26	20	29	7	5	87	5th	EU
Estonia	29	6	3	7	5	50	25th	EU
Finland	22	14	15	7	5	63	15th	EU
France	19	25	28	7	5	84	6th	EU
Germany	25	13	19	7	5	69	11th	EU
Greece	16	19	8	7	5	55	19th	EU
Hungary	24	26	13	7	5	75	9th	EU
Iceland	3	7	11	7	5	33	29th	EU
Ireland	6	8	27	7	5	53	23rd	EU
Italy	20	22	22	7	5	76	8th	EU
Japan	12	15	9	6	29	71	10th	Japan's revised NDC, announced in April, not yet formalised.
Latvia	30	29	17	7	5	88	4th	EU
Lithuania	31	21	14	7	5	78	7th	EU
Luxembourg	15	4	24	7	5	55	19th	EU
Netherlands	17	10	18	7	5	57	18th	EU
New Zealand	4	5	4	4	2	19	30th	Pending announcement of new NDC.
Norway	11	16	26	7	5	65	13th	EU
Poland	18	11	6	7	5	47	26th	EU
Portugal	8	27	20	7	5	67	12th	EU
Slovenia	13	18	12	7	5	55	19th	EU
Spain	7	24	21	7	5	64	14th	EU
Sweden	23	31	30	7	5	96	3rd	EU
Switzerland	14	30	31	31	2	108	2nd	Migrated from 50% in first NDC to "at least" 50% in second.
Turkey	1	28	10	1	1	41	27th	No NDC. Recently agreed to ratify the <i>Paris Agreement</i> .
United Kingdom	28	23	25	30	30	136	1st	
United States	10	2	5	5	31	53	23rd	First NDC target year of 2025, rather than 2030.

Figure 20: Comparing the change in emissions in wealthy developed countries between 1990 and 2019 (excluding land use). Australia is among a minority of countries in which emissions have increased rather than decreased since 1990. Only Turkey – which has only very recently ratified the Paris Agreement – has seen a larger increase in emissions than Australia, and Australia still has significantly higher emissions per person. **Data source:** PRIMAP-hist.



4.2 Ranking of fossil fuel extraction and use

Australia ranks equal last among wealthy developed countries for fossil fuel extraction and use, based on our indicators. Understanding Australia's full contribution to the climate crisis demands that we look not only at emissions produced within Australia, but also take account of Australia's role as one of the world's largest exporters of fossil fuels. Despite its natural advantages in renewable energy, with the potential to meet its domestic needs many times over, Australia continues to extract, burn and export enormous quantities of coal and gas, earning it the label of a global climate pariah. While some continue to falsely characterise Australia as a relatively small emitter in global terms, in reality we are truly a fossil fuel giant and a major emitter in both absolute and per capita terms.







Figure 21: Open-cut coal mine in the Hunter Valley.

Australia is seen as a global climate pariah – we have the potential to meet and well-exceed our domestic energy use with renewables, yet we continue to extract, burn and export enormous quantities of coal and gas.

Table 2: Ranking of wealthy developed countries in terms of fossil fuel extraction and use, where Australia ranks equal last among wealthy developed countries.

Fossil fuel extraction and use							
Country	Total fossil fuel exports, 2018, ktoe (thousand tonnes of oil equivalent), score	Change in total fossil fuel exports, %, 1990-2018, score	Net fossil fuel exports, ktoe, 2018, score	Fossil fuel consumed pp, toe, 2018, score	Change in fossil fuel consumed, toe pp, 1990-2018, score	Overall fossil fuel score	Overall fossil fuel rank (out of 31)
Australia	2	7	1	6	10	26	30th
Austria	20	2	20	9	4	55	26th
Belgium	7	20	22	4	6	59	25th
Canada	3	10	2	2	9	26	30th
Czech Republic	23	30	17	14	29	113	1st
Denmark	16	22	6	25	24	93	12th
Estonia	26	1	4	26	30	87	15th
Finland	17	5	14	13	28	77	20th
France	10	21	29	18	20	98	7th
Germany	11	25	30	10	22	98	7th
Greece	12	11	18	29	14	84	17th
Hungary	18	4	15	20	12	69	23rd
Iceland	31	26	5	7	18	87	15th
Ireland	27	14	12	11	11	75	21st
Italy	8	23	28	22	21	102	4th
Japan	13	8	31	15	15	82	18th
Latvia	28	12	7	28	19	94	9th
Lithuania	19	28	10	19	25	101	5th
Luxembourg	30	31	9	1	23	94	9th
Netherlands	5	19	23	5	17	69	23rd
New Zealand	24	24	11	8	8	75	21st
Norway	4	18	3	12	13	50	29th
Poland	15	29	21	21	2	88	14th
Portugal	22	16	19	30	7	94	9th
Slovenia	25	3	8	16	3	55	26th
Spain	9	15	26	24	5	79	19th
Sweden	14	17	16	27	31	105	2nd
Switzerland	29	13	13	23	27	105	2nd
Turkey	21	9	27	31	1	89	13th
United Kingdom	6	27	24	17	26	100	6th
United States	1	6	25	3	16	51	28th

Figure 22: It's not just our assessment – Australia has consistently ranked poorly on a range of international, independently published indexes that analyse progress to address climate change.

How do others rate Australia?		
Name of ranking	What does it look at?	Australia's performance
 <p>CCPI Climate Change Performance Index</p> <p>(Burck et al. 2021)</p>	<p>Ranks countries based on greenhouse gas emissions (40% of overall ranking), renewable energy (20%), energy use (20%), and climate policy (20%).</p>	<p>Australia ranked second worst for climate policy in 2021. Overall, ranked 54th out of 61 countries.</p>
 <p>SUSTAINABLE DEVELOPMENT REPORT</p> <p>(Sachs et al. 2021)</p>	<p>Ranks 165 UN member countries on how close they are to achieving the United Nations' Sustainable Development Goals.</p>	<p>Australia ranked last in 2021 for action taken to reduce global greenhouse gas emissions (Goal 13).</p>
 <p>Healthy NDCs Scorecard</p> <p>(Global Climate and Health Alliance 2021)</p>	<p>Covering 93 countries, analyses the extent to which health is recognised and addressed in countries' Nationally Determined Contributions (NDCs) to the <i>Paris Agreement</i>.</p>	<p>Australia scored 0 out of 15 possible points. Australia's NDC fails to mention health, fails to align with the <i>Paris Agreement</i>, and fails to include an updated 2030 target.</p>
 <p>Climate Action Tracker</p> <p>(Climate Action Tracker 2021b)</p>	<p>Provides independent scientific analysis that tracks government climate action and measures it against the <i>Paris Agreement</i>.</p>	<p>Australia has received an overall rating of 'Highly Insufficient' due to failing to provide an updated 2030 target and expanding gas as part of its economic recovery.</p>

4.3 Climate finance

While it receives relatively little political attention within Australia, climate finance – the flow of funding from developed to developing countries to assist with adapting to climate change and building the clean economies of the future – is a key pillar of the world's response to climate change and at the heart of international climate negotiations.

Australia's financial support for climate action beyond its shores has been mixed. In the early 2010s, Australia was providing a strong contribution towards the shared international climate finance goal of the time and its spending aligned well with the immediate needs and priorities of the world's most vulnerable countries. Australia also played a leadership role during the early days of the Green Climate Fund – serving as co-chair of its Board and working in particular to ensure that the Green Climate Fund would be effective in meeting the challenges faced by Pacific Island Countries.

Australia's climate finance has continued, for the most part, to be well targeted. It has continued to focus on supporting vulnerable communities with building their resilience to the impacts of climate change, bucking a global trend that has seen only a small portion of climate finance flow towards adaptation and resilience-building efforts. It has been based entirely on grants rather than loans and so has not saddled countries with further debt.

However, Australia has failed to significantly increase its overall climate finance contribution, in line with the shared commitment from developed countries to mobilise US\$100bn a year by 2020, and to maintain that annual contribution until 2025.⁶ In Paris in 2015, the Australian Government committed to provide AU\$1bn over 2015-2020. At AU\$200m per year, this maintained a similar annual contribution to what Australia had been making since

Australia's annual climate finance should increase by tenfold to meet the recommended contribution of 2-3% of the global total.

⁶ In Glasgow, countries are set to launch negotiations on a new shared goal for international climate finance for post 2025, from a floor of US\$100 billion per year.

2010. The Government has increased that contribution by 50% for the 2021-2025 period, pledging to contribute AU\$1.5 billion over five years, or AU\$300 million a year. In 2018 it decided to cease giving money to the Green Climate Fund, opting to instead channel all its funding through bilateral agreements. The decision was widely criticised, including by Pacific Island Countries, who have repeatedly asked Australia to resume contributions to the Green Climate Fund.

Efforts to determine Australia's 'fair share' of the US\$100 billion goal have tended to conclude that Australia should contribute around 2-3% of the total, taking into account factors including our relative wealth and historical emissions (see, for example Jotzo et al. 2011). Adjusting for current exchange rates, a contribution of AU\$300 million a year amounts to only around 0.22% of the US\$100 billion. In other words, Australia will need to lift its annual contribution by around a factor of ten if it is to fulfil its fair share towards this global goal.

Climate finance is an essential tool through which Australia and other developed countries help to accelerate decarbonisation globally. Demonstrating adequate progress in the delivery of climate finance is also critical to building the trust and goodwill between developed and developing countries upon which the process of international climate negotiations is wholly reliant.

It is vital that developed countries can demonstrate, before Glasgow, that they have at least met the US\$100 billion commitment made a decade ago. Recognising how important this is to a successful COP26, in September the US became the latest country to commit to substantially increasing its contribution of climate finance, with a pledge to double its contribution to US\$11.4 billion per year. This will elevate the US per capita contribution to well above that of Australia. It is no coincidence that this announcement from the US was followed swiftly by a commitment from China to end all financing for coal power plants overseas.

As a first step towards progressively ramping up its support for climate action overseas, Australia should follow the US and commit to doubling its current contribution of climate finance, from AU\$1.5 billion for 2021-2025 to AU\$3 billion (that is, from AU\$300m annually to AU\$600m), and resume putting a portion of its overall climate finance contribution into the Green Climate Fund.

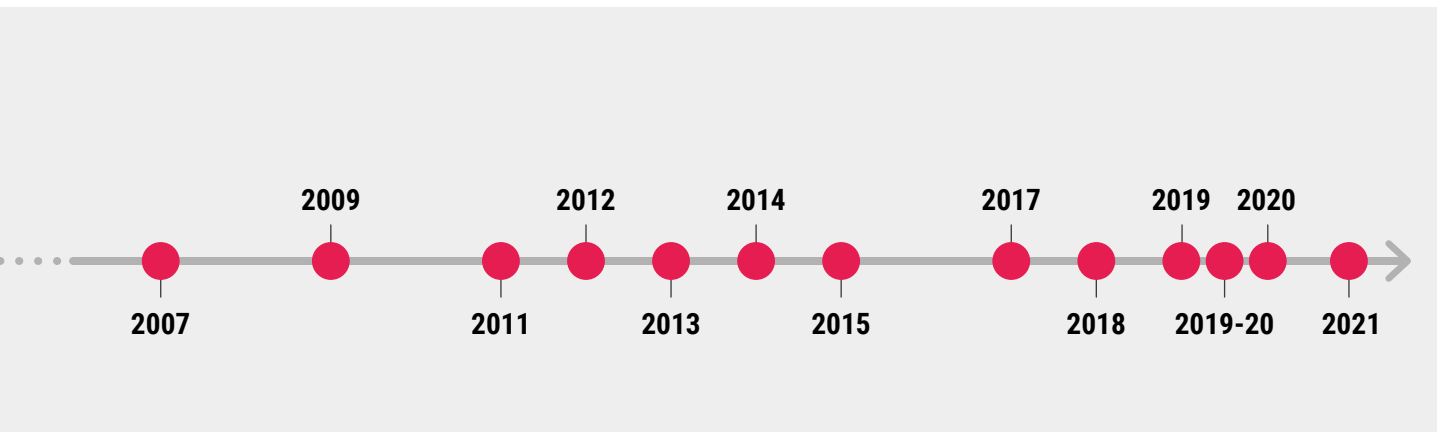
4.4 Australia's true colours: A history of stalling and blocking progress



Figure 23: Timeline of key moments in global and Australian climate politics.

When	What
1992	154 states including Australia sign the United Nations Framework Convention on Climate Change (UNFCCC) .
1997	The Kyoto Protocol is adopted. Australia negotiates a commitment that allows it to increase its emissions to 108% of 1990 levels during the first Kyoto period. Australia also insists on what became known as the 'Australia clause', which allowed it to include declining emissions from land clearing to meet this target. Despite this special treatment, Australia did not go on to ratify the Kyoto protocol until 2007 (Hamilton 2015).
2005	Kyoto Protocol comes into force but Australia has still not ratified it.
2007	Australia finally ratifies the Kyoto Protocol. Australia's <i>emissions</i> from reduced land clearing since 1990 have virtually cancelled out growth in emissions from fossil fuels, so Australia meets its first target while barely lifting a finger (Taylor 2015).

When	What
2009	The United Nations Climate Conference in Copenhagen (COP15) fails to achieve a universal and binding commitment to limit global warming.
2011	Australia legislates a comprehensive suite of climate measures, including a price on carbon, the Clean Energy Finance Corporation, the Climate Change Authority (a body to guide policy and targets) and the Climate Commission (the forerunner of today's independent Climate Council).
2012	The price on carbon comes into force on 1 July.
2013	The Australian Government abolishes its Climate Commission. The second commitment period of the Kyoto Protocol starts (2013-2020) with Australia having negotiated a target to reduce emissions by 5% below 2000 levels by 2020 – the weakest target in the world.



When	What
2014	Australia repeals its price on carbon. Funding is cut to key agencies including the CSIRO, Climate Change Authority, and Australian Renewable Energy Agency.
2015	Australia weakens its Renewable Energy Target.
	Australia sets a 2030 emissions reduction target of 26-28% below 2005 levels, among the weakest of developed countries.
	195 countries including Australia adopt the <i>Paris Agreement</i> .
2017	Federal Government ministers bring a lump of coal into Parliament to underline the Australian commitment to coal.
2018	Australia announces it will use 'carry-over' credits from the Kyoto Protocol to meet its first commitment under the <i>Paris Agreement</i> . The move has no legal basis and is widely criticised for being against the spirit of the <i>Paris Agreement</i> .

When	What
2019	Australia is called out as one of a handful of countries holding up progress on the completion of the <i>Paris Agreement</i> 's rulebook, specifically rules covering the international trade in emissions reductions (Article 6).
2019-2020	Australia experiences the catastrophic Black Summer bushfires on the back of the hottest and driest year on record.
2020	Australia embarks on a 'gas-fired' recovery from the COVID-19 pandemic.
2021	Australia approves multiple new coal projects in the weeks leading up to COP26.

Australia's ruthless and regressive approach to international climate negotiations has led it to negotiate absurdly weak commitments for itself, while also blocking or frustrating progress across multiple aspects of the world's response to climate change. Meanwhile on the home front, Australia has failed over three decades to make meaningful cuts to its greenhouse gas emissions and continues to support new coal and gas developments.

Australia cemented its reputation as a drag on global efforts at least two decades ago in Kyoto, insisting on special treatment that would allow it to easily meet its weak commitments during the two Kyoto periods (Figure 24).

Australia went on to set a very weak first target for itself under the *Paris Agreement*. In 2014, Australia's Climate Change Authority recommended that to play its part in limiting warming to 2°C, Australia should adopt a target of 40-60% below 2000 levels (around 45-65% below 2005 levels) (CCA 2014). Australia instead set a woefully inadequate 2030 target of 26-28% below 2005, maintaining its position at the back of the pack of developed countries. Australia has since fallen even further behind as almost all other advanced economies have significantly increased their 2030 targets ahead of Glasgow. A recent assessment by the Climate Council, based on the latest science and the goals of the *Paris Agreement*, has recommended that Australia's 2030 target be increased to 75% below 2005 levels (Climate Council 2021b).

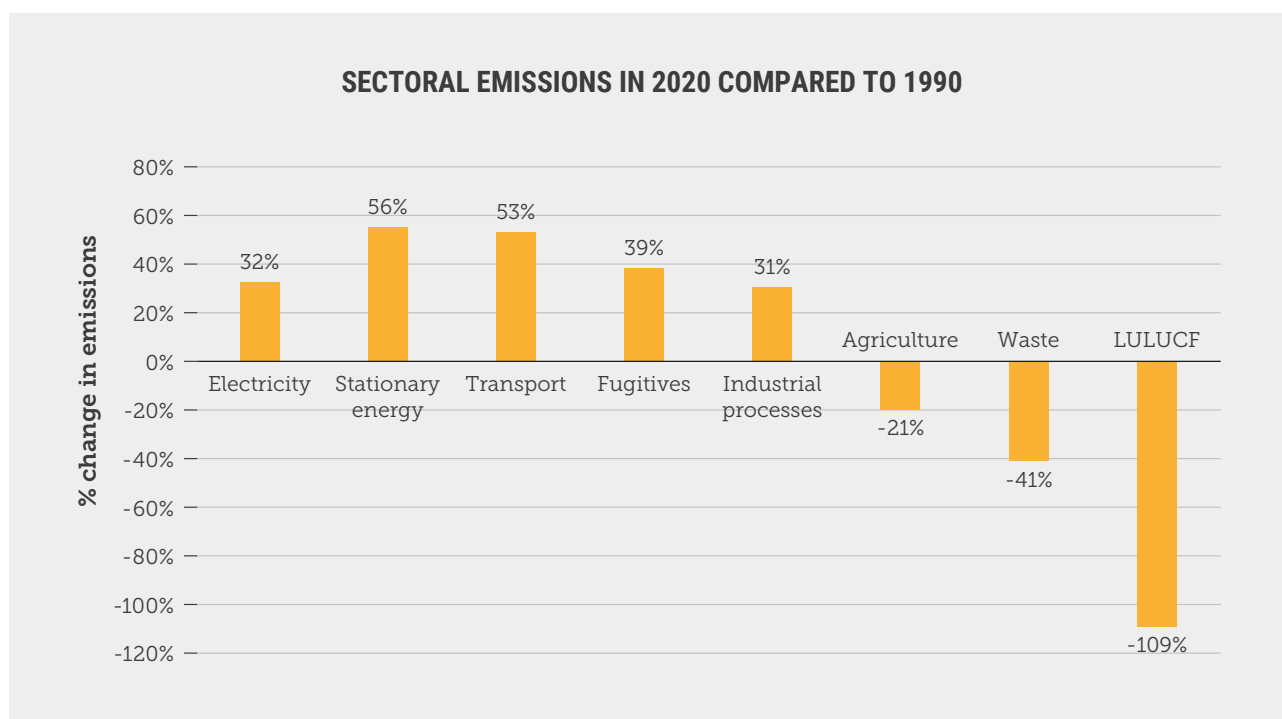


Figure 24: Change in emissions since 1990 by sector. **Note:** The sectors that produce the most emissions in Australia are electricity, stationary energy and transport, which combined make up around 70% of emissions. Agriculture accounts for around 15% of emissions and waste accounts for around 3% of emissions. **Data source:** Department of Industry, Science, Energy and Resources 2021a.

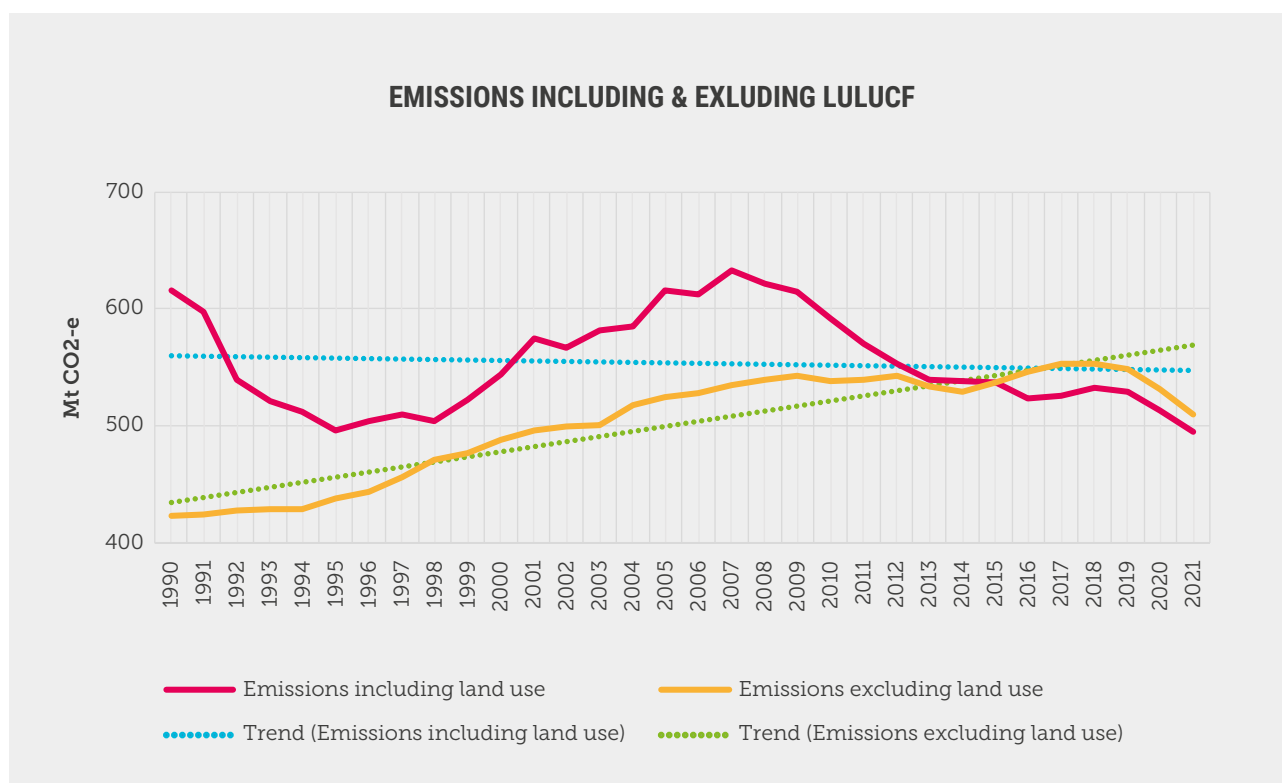


Figure 25: Australia's emissions since 1990, with and without emissions from land use. **Data source:** Department of Industry, Science, Energy and Resources 2021b.

Australia's emissions rose steeply from 1990 to 2020 in all sectors except land use, agriculture and waste (see Figure 24). This has meant that Australia's total emissions excluding land use have increased since 1990, apart from a slight fall during the operation of the carbon price, and more recently, due largely to the COVID-19 pandemic (see Figure 25).

Until recently, the Australian government intended to use so-called 'carry over credits' from the Kyoto Protocol to meet its 2030 target under the *Paris Agreement*. However, as the *Paris Agreement* is a separate instrument from the Kyoto Protocol, there is no legal basis for Australia to use these now-expired allocations (Climate Analytics 2019).

Moreover, this intention by Australia was widely condemned as being against the spirit of the *Paris Agreement*.

Since the adoption of the *Paris Agreement*, governments have been painstakingly negotiating the rules for its implementation. Australia's determination to use these Kyoto-era credits held up negotiations to finalise the Paris rulebook. Specifically, Australia held up progress on Article 6 of the *Paris Agreement*, which covers the international trade in emissions reductions. At the close of COP24 in Katowice (2018) and again at COP25 in Madrid (2019), Article 6 remained unresolved. Australia was labelled as one of a handful of countries who thwarted a deal (Morton 2019).⁷

⁷ In response to international and domestic pressure, Prime Minister Morrison has since announced that Australia does not expect to need to draw on 'carry over credits' to meet its targets, though is yet to formally and unambiguously rule out doing so.

In September 2021 a group of 70 former Australian diplomats wrote to Prime Minister Scott Morrison urging a strengthening of Australia's climate commitments, warning that Australia's current actions undermine Australia's credibility as a regional partner, put Australia's key strategic and economic interests at risk, and will undermine many of the strong international relationships that Australia has built up over decades (Murphy 2021). Days earlier, Nigel Topping, UN High-Level Climate Action Champion, warned that "Australia and its companies stand to lose both reputationally and economically if it continues to stay on the outer of international efforts, and throws good money after bad" (O'Malley 2021b).

It is not too late for Australia to play a constructive role in international climate action, boosting our international reputation, unlocking new economic opportunities for Australians, and helping protect communities everywhere from the ravages of climate change. In Chapter 5 we look at Australia's opportunity and what we should bring to Glasgow.

AUSTRALIA'S KYOTO AND PARIS COMMITMENTS COMPARED WITH OUR PEERS

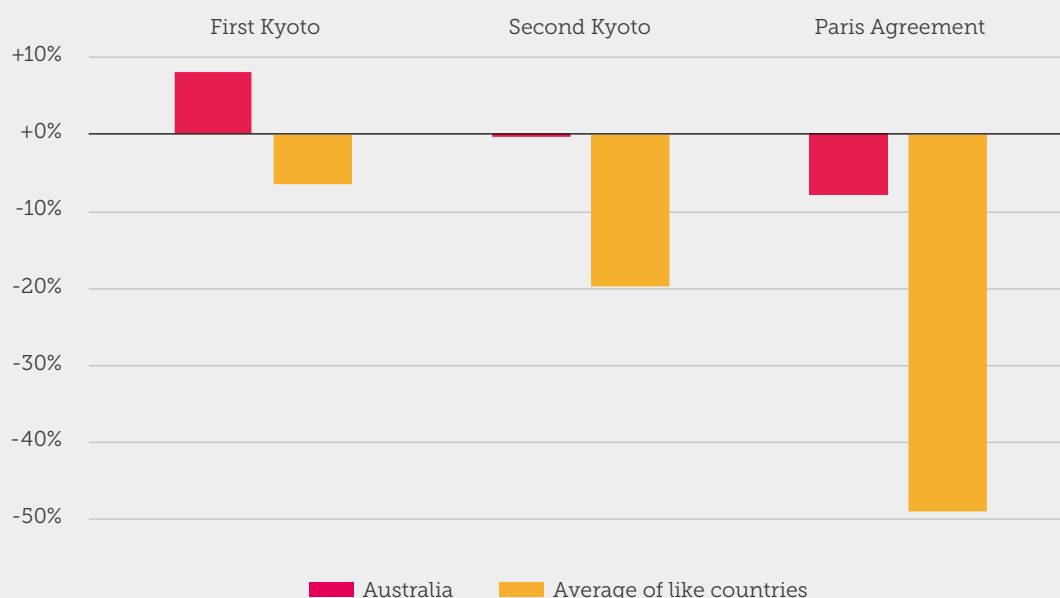


Figure 26: Australia's first and second commitments under the Kyoto Protocol and its first Nationally Determined Contribution to the Paris Agreement, compared to the average across comparable countries. (This list of countries is the same as used in our rankings in Chapters 4.1 and 4.2, excluding Turkey as it did not have targets during the Kyoto period). **Data source:** Climate Council.

5. Australia's opportunity: Thriving in the energy transition

Figure 27: Workers at the Coopers Gap Wind Farm near Cooranga North, Queensland. The state could become a global leader in renewable energy and clean industries.



5.1 Our natural advantage

"Australia is uniquely vulnerable to climate change, but it is also uniquely placed to benefit economically from global decarbonisation due to its natural endowments (e.g. wind, sun, ocean access) and strong human capital to form the basis of innovation in carbon abatement technologies." Organisation for Economic Co-operation and Development (OECD), Economic Survey of Australia, September 2021.

Faced with the global energy transition, Australian policymakers are presented with excellent opportunities for economic growth and international influence. Setting a plan for net zero emissions, and ambitious targets to reduce emissions this decade, will unlock investment and create new jobs in renewable energy, clean industries, and mining. Many of these jobs will be in regional communities. More ambitious climate action will also strengthen Australia's standing on the world stage and improve relations with countries in the Indo-Pacific.

NEW EXPORT INDUSTRIES

Australia has world-class resources for renewable energy and enviable reserves of critical minerals needed to drive the global green energy revolution (Geosciences Australia 2018; 2019). Australia stands to become a green exports superpower, with the potential to grow a new export mix worth \$333 billion per annum – almost triple the value of existing fossil fuel exports (Beyond Zero Emissions 2021).

By rapidly deploying renewables beyond 100% of today's electricity demand, Australia can generate renewable energy to export directly to growing economies in Asia. Already, multi-billion-dollar projects are slated for construction. In the Barkly region of the Northern Territory, a \$30 billion solar power plant is planned – the largest in the world – to supply energy to Singapore via an undersea cable. By 2027 the Sun Cable project could provide 15% of Singapore's power supply (Fogarty 2021).

Mining for critical minerals will create new jobs in regional Australia.



Figure 28: The employment opportunities that come from building Australia's zero emissions future are immense.

As demand for zero carbon commodities grows, Australia is also presented with a once-in-a-lifetime chance to secure market share for products like green steel and aluminium, and renewable hydrogen and ammonia. Major investors are keen to seize the opportunity. Billionaire entrepreneur Andrew Forrest wants to combine Australia's renewable energy and iron ore resources to produce green hydrogen and green steel at global scale. He anticipates that green industry will create many more jobs than Australia's coal industry (Forrest 2021).

Already a major mining nation, Australia is also well placed to become an exporter of minerals that are key to the energy transition. Australia is already the world's largest producer of lithium and third largest producer of cobalt, both important minerals in batteries (Australian Government 2021). Australia is also

the second largest producer of rare earth elements, which are used, among other things, for magnets in wind turbines and EV motors. Many deposits are found in parts of the country that are today involved in fossil fuel extraction. In northwest Queensland for example, untapped deposits of critical energy minerals are valued at more than \$500 billion (Climate Council 2020b). As Australian exports of critical minerals grow, social and environmental impacts will need to be carefully managed.

Australia also needs to plan to move up the value chain, from extraction of raw materials to activities that create long-lasting, high-value jobs. For example, regional cities including Townsville in Queensland, have the skilled workforce and industrial infrastructure needed to become a hub for lithium-ion battery manufacturing (Climate Council 2021b).

NEW JOBS FOR REGIONAL AUSTRALIA

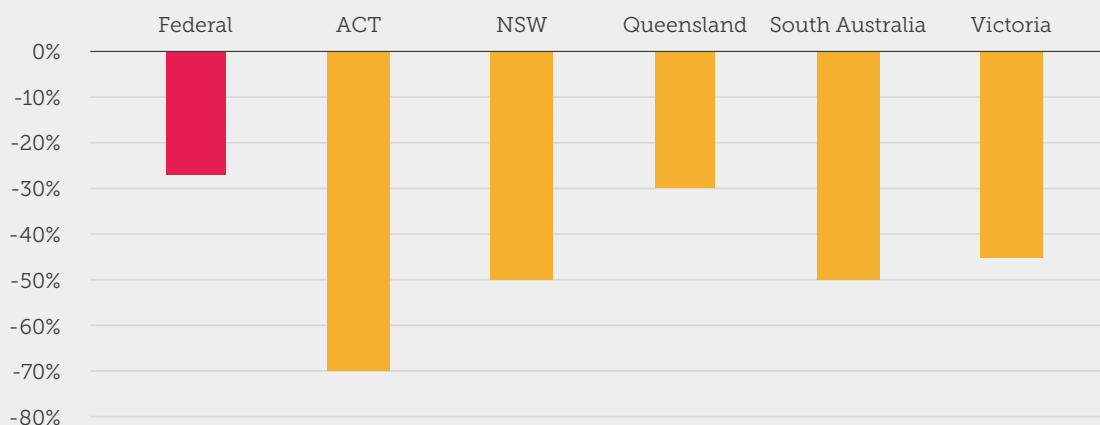
Just as US President Joe Biden says “when I think climate change, I think jobs” (White House 2021b), Australia too can create tens of thousands of jobs as it moves towards a net zero economy and becomes a major clean energy exporter (Climate Council 2020b). Australia has all the technology needed to transform its high-emitting electricity sector to zero emissions this decade. This will require installation of utility-scale renewable energy, including solar and wind farms, transmission infrastructure and large-scale battery storage – which can create over 100,000 jobs in construction and at least 22,000 ongoing jobs (Beyond Zero Emissions 2020). The Australian Energy Market Operator is already planning for the country’s main grids to handle periods of 100% renewable energy penetration by 2025 (Parkinson 2021). Setting a plan to get to 100% renewable electricity as soon as possible will unlock a new wave of investment (Gluyas 2021).

RESTORING AUSTRALIA'S INTERNATIONAL STANDING AND INFLUENCE

Finally, more ambitious climate policy will deliver a diplomatic dividend, significantly strengthening Australia’s standing on the global stage. Setting new targets to cut emissions over the next decade will improve relations with other countries that have already done so – including key allies like the US and the UK – and will help cement relations with Pacific Island Countries.

Figure 29: Federal government’s 2030 targets versus state and territory 2030 targets. (Only those states and territories that have set their own 2030 targets are shown).

FEDERAL GOVERNMENT'S 2030 TARGETS VERSUS STATE/TERRITORY 2030 TARGETS



BOX 2: STATES, TERRITORIES AND BUSINESSES ARE LEADING THE WAY

Australia's state and territory governments, plus some of its business leaders, have recognised the need for strong and fast emission reductions *this decade*, and are rising to the challenge.

The NSW government recently stepped up to the plate and committed to a 50% cut in emissions below 2005 levels by 2030, joining Victoria and South Australia with similar existing 2030 targets (Raper 2021). This matches the United States' increased interim targets ahead of COP26 and represents a government understanding of both the political imperative to step up ambition and the economic opportunity in doing so.

The ACT has set a target of net zero by 2045 and released a detailed and appropriately staggered emissions reduction plan, with 50-60% reduction by 2025, 65-75% by 2030 and 90-95% by 2040. Additionally, the ACT achieved its goal to source 100% of its electricity from renewable energy in 2020 and did so under budget. This is a good example of what science-backed climate action can look like at a government level.

Tasmania has achieved its net zero goal for six of the past seven years (Tasmanian Government 2021). After achieving 100% self-sufficient renewable energy, Tasmania has doubled this target and is aiming to generate 200% of their current electricity needs by 2040 from renewable energy (Barnett 2020).

The targets announced by Australia's states and territories are shown in Figure 29, opposite.

Alongside leadership from Australia's state and territory governments, many businesses and industries have recognised the importance of cementing tangible, science-backed commitments to action. However, many have relied on excessive amounts of carbon offsetting to achieve net zero targets (Greenpeace 2021). Arguably, a better indicator of businesses' climate commitments is their renewable electricity targets. For example, Sydney Airport has committed to both net zero by 2030 and 100% renewable electricity by 2030, ensuring they have zero reliance on offsetting to achieve their targets. Property group Mirvac has gone a step further and achieved 100% renewable electricity in 2021, clearing their way for an offset-free net zero by 2030 target (Greenpeace 2021).

Australia's state and territory governments and businesses continue to do the heavy lifting on climate action. Building on these foundations and unlocking Australia's potential as a global renewables powerhouse demands ambitious national targets and a comprehensive national plan of action to achieve them.

Australia's state and territory governments and businesses are leading the charge on climate action.

5.2 Recommendations

COP26 in Glasgow is a pivotal moment in the world's response to climate change. The urgency and gravity of the climate crisis demands that every country bring to the table the most ambitious commitments and actions they can muster. Australia must meet this moment by substantially stepping up its efforts across all aspects of international cooperation on climate change, beginning with a far stronger emissions reduction target for 2030. Doing so will ensure Australia plays its part in avoiding climate catastrophe while reaping the economic benefits of the global energy transition.

The following recommendations cover the key commitments that the Australian Government should make if we are to play our part in meeting the goals of COP26.

1. Ensure Australia's emissions plummet this decade

The science demands that Australia reduce its emissions by 75% (below 2005 levels) by 2030 and achieve net zero by 2035.

- › As a first step, Australia must at least match the updated commitments from our key allies, and pledge before Glasgow to at least halve our emissions (below 2005 levels) by 2030.
- › This target must be accompanied by an ambitious national plan of action that includes delivery of 100% of our electricity from sun, wind and other renewable power storage by 2030; the cleanup of our transport including a shift to electric vehicles; absorbing more carbon in the landscape through the protection and restoration of our ecosystems; and supporting the transition of communities and workers to new clean industries.
- › Australia should immediately end public funding for coal, oil and gas.

The moment demands that Australia thinks beyond 'doing its bit', and instead starts giving its very best.

2. Step up support for climate action beyond our shores

Australia should progressively increase its funding for climate change adaptation and mitigation in developing countries until it reaches a fair share of the current international goal of mobilising US\$100 billion a year, and any future climate finance goal negotiated under the *Paris Agreement*.

- › As a first step, Australia should follow the US in doubling its current climate finance contribution, and pledge to provide at least AU\$3 billion over 2021-2025. Australia should also resume contributing a portion of its international climate finance to the Green Climate Fund.

3. Be an ally to vulnerable developing countries and a constructive player in international climate negotiations

Beyond lifting its own commitments to action, Australia must work cooperatively with other countries to ensure much needed progress across all areas of the *Paris Agreement*. In particular, Australia must:

- › Help ensure completion of the Paris Rulebook through the resolution of negotiations on the international trade in emissions reductions (Article 6). Australia should support accounting rules that encourage greater global ambition, avoid 'double counting' and prevent the carry-over of 'credits' from the Kyoto period.
- › Support the key priorities of Australia's Pacific family, including for greater support in addressing loss and damage from climate change.
- › Join the Global Methane Pledge - a collective goal to cut global methane emissions by 30% by 2030.

References

- Australian Government, 2021. *Resources Technology and Critical Minerals Processing (National Manufacturing Priority road map)*. <https://www.industry.gov.au/data-and-publications/resources-technology-and-critical-minerals-processing-national-manufacturing-priority-road-map>.
- Barnett G, 2020. 'Continuing our plan to be a Renewable Energy Powerhouse', *The Department of Premier and Cabinet Tasmania*. http://www.premier.tas.gov.au/site_resources_2015/additional_releases/continuing_our_plan_to_be_a_renewable_energy_powerhouse/continuing_our_plan_to_be_a_renewable_energy_powerhouse.
- Besser L, 2021. 'Australian exporters could face millions of dollars in European tariffs as EU seeks to punish polluters', *ABC News*. <https://www.abc.net.au/news/2021-03-11/australia-to-face-huge-tariffs-in-europe-over-climate-emissions/13233360>.
- Beyond Zero Emissions, 2020. *The Million Jobs Plan: A unique opportunity to demonstrate the growth and employment potential of investing in a low-carbon economy*. <https://bze.org.au/wp-content/uploads/2020/11/BZE-The-Million-Jobs-Plan-Full-Report-2020.pdf>.
- Beyond Zero Emissions, 2021. *Export Powerhouse: Australia's \$333 billion opportunity*. https://bze.org.au/research_release/export-powerhouse/.
- Black R, Cullen K, Fay B, Hale T, Lang J, Mahmood S, and Smith S, 2021. 'Taking Stock: A global assessment of net zero targets', *Energy & Climate Intelligence Unit and Oxford Net Zero*. <https://www.socsci.ox.ac.uk/article/net-zero-pledges-go-global-now-action-needs-to-follow-words-oxford-eciu-report>.
- Blunt K and McFarlane S, 2020. 'The New Green Energy Giants Challenging Exxon and BP', *The Wall Street Journal*. <https://www.wsj.com/articles/the-new-green-energy-giants-challenging-exxon-and-bp-meet-nextera-enel-11607696660>.
- BoM (Bureau of Meteorology), 2014. *Climate Variability, Extremes and Change in the Western Tropical Pacific: New Science and Updated Country Reports*. <https://www.pacificclimatechangescience.org/publications/reports/climate-variability-extremes-and-change-in-the-western-tropical-pacific-2014/>.
- BoM, 2021. *Special Climate Statement 74 - extreme rainfall and flooding in eastern and central Australia in March 2021*. <http://www.bom.gov.au/climate/current/statements/scs74.pdf>.
- Burck J, Hagen U, Bals C, Höhne N, and Nascimento L, 2021. 'Climate Change Performance Index: Results', *Germanwatch, the NewClimate Institute and Climate Action Network*. <https://ccpi.org/wp-content/uploads/Climate-change-performance-index-2021.pdf>.
- CCA (Climate Change Authority), 2014. *Reducing Australia's greenhouse gas emissions—Targets and progress review final report*. <https://www.climatechangeauthority.gov.au/sites/default/files/2020-06/Target-Progress-Review/Targets%20and%20Progress%20Review%20Final%20Report.pdf>.
- Chanel S, 2021. 'Tropical Cyclone Ana: Fiji suffers second deadly storm in a month', *The Guardian*. <https://www.theguardian.com/world/2021/feb/01/tropical-cyclone-ana-fiji-suffers-second-deadly-storm-in-a-month>.
- Chestney N, 2021. 'Rich nations 'must consign coal power to history' - UK COP21 president', *Reuters*. <https://www.reuters.com/business/sustainable-business/rich-nations-must-consign-coal-power-history-uk-cop26-president-2021-07-21/>.
- Climate Action Tracker, 2021a. Country pages: <https://climateactiontracker.org/countries/>.
- Climate Action Tracker, 2021b. *Australia: Country Summary*. <https://climateactiontracker.org/countries/australia/>.
- Climate Analytics, 2019. 'Australia's proposed 'Kyoto carryover' - nature, scale, implications, legal issues and environmental integrity of the Paris Agreement', *Climate Analytics*. <https://australiainstitute.org.au/wp-content/uploads/2020/12/Climate-Analytics-Kyoto-Carryover-In-Madrid.pdf>.
- Climate Council, 2020a. *Tropical Cyclones and Climate Change: Factsheet*. <https://www.climatecouncil.org.au/resources/fact-sheet-tropical-cyclones-and-climate-change>.
- Climate Council, 2020b. *Leaders and Legends: Thousands of Clean Jobs for Queenslanders*. <https://www.climatecouncil.org.au/resources/leaders-legends-thousands-clean-jobs-queenslanders/>.
- Climate Council, 2021a. *Climate Council 2021: The Physical Science Basis. Understanding the Working Group I Contribution to the IPCC's Sixth Assessment Report: What it tells us, why it matters, and what it means for Australia*. https://www.climatecouncil.org.au/wp-content/uploads/2021/08/IPCC-6AR-WGI-Explainer_updated.pdf.
- Climate Council, 2021b. *Aim High, Go Fast: Why Emissions Must Plummet This Decade*. <https://www.climatecouncil.org.au/wp-content/uploads/2021/04/aim-high-go-fast-why-emissions-must-plummet-climate-council-report.pdf>.
- Climate Council, 2021c. *Markets are moving: the economic costs of Australia's climate inaction*. Accessed at <https://www.climatecouncil.org.au/resources/markets-moving-economic-costs-australias-climate-inaction/>.
- Climate Council, 2021d. *Hitting Home: The Compounding Costs of Climate Inaction*. <https://www.climatecouncil.org.au/resources/hitting-home-compounding-costs-climate-inaction/>.
- Department of Industry, Science, Energy and Resources, 2021a. 'National Greenhouse Gas Inventory - Kyoto Protocol Classifications', *Australian Greenhouse Information System (AGEIS)*. <https://ageis.climatechange.gov.au/NGGI.aspx>.
- Department of Industry, Science, Energy and Resources, 2021b. *Australia's emissions projections 2020*. <https://www.industry.gov.au/data-and-publications/australias-emissions-projections-2020>.

- Doherty B, 2018. 'Pacific nations under climate threat urge Australia to abandon coal within 12 years', *The Guardian*. <https://www.theguardian.com/environment/2018/dec/14/pacific-nations-under-climate-threat-urge-australia-to-abandon-coal-within-12-years>.
- Dziedzic S and Handley E, 2019. 'Climate change is "no laughing matter", Fiji's PM Frank Bainimarama tells Australia during Morrison's Pacific trip'. *ABC News*. <https://www.abc.net.au/news/2019-01-18/climate-change-is-no-laughing-matter-fiji-pm-says/10724582>.
- Energy and Climate Intelligence Unit, 2021. *Net-Zero Tracker*. <https://eciu.net/netzerotracker/map>.
- Fink L, 2021. Letter to Chief Executive Officers, *BlackRock*. <https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter>.
- Fogarty D, 2021. 'Aussie solar cable project moves ahead with Indonesia's approval of subsea route', *The Straits Times*. <https://www.straitstimes.com/asia/se-asia/aussie-solar-cable-project-moves-ahead-with-indonesias-approval-of-subsea-route>.
- Forrest A, 2021. 'Andrew Forrest on how green steel and hydrogen offer a chance to fix our climate and our economy', *ABC Radio National*. <https://www.abc.net.au/news/2021-01-22/boyer-lecture-andrew-twigg-forrest-green-hydrogen-climate/13077070>.
- G7, 2021. *Carbis Bay G7 Summit Communique: Our shared agenda for global action to build back better*. <https://www.g7uk.org/wp-content/uploads/2021/06/Carbis-Bay-G7-Summit-Communique-PDF-430KB-25-pages-3.pdf>.
- Geosciences Australia, 2018. *Australia's Identified Mineral Resources*. December 31, 2018. <https://www.ga.gov.au/scientific-topics/minerals/mineral-resources-and-advice/aimr>.
- Geosciences Australia, 2019. *Australian Energy Resources Assessment*, July 5, 2019. <http://aera.ga.gov.au>.
- Global Climate and Health Alliance, 2021. *Healthy NDCs Scorecard*. <https://climateandhealthalliance.org/initiatives/healthy-ndcs/ndc-scorecards/>.
- Global Energy Monitor, Sierra Club, CREA, Climate Risk Horizons, GreenID, Ekosfer, 2021. *Boom and Bust 2021: Tracking the Global Coal Plant Pipeline*. https://endcoal.org/wp-content/uploads/2021/04/BoomAndBust_2021_English.pdf.
- Gluyas R, 2021. 'Investors push for climate targets', *The Weekend Australian*. September 25-26, 2021.
- Goering L, 2021. 'Small island states, Britain warns UN of climate threats to security', *Reuters*. <https://www.reuters.com/article/us-climate-change-security-un-trfn-idUSKBN2AO04K>.
- Golden M, 2020. 'Renewables growth in China, India underappreciated, but "no vaccine for climate crisis"', *Stanford Energy*. <https://energy.stanford.edu/news/renewable-energy-growth-china-and-india-underappreciated-no-vaccine-climate-crisis>.
- Greenpeace, 2021. *Hero to zero: Uncovering the truth to corporate Australia's climate action claims*. <https://www.greenpeace.org.au/news/australias-biggest-corporate-greenwashers-revealed-new-report/>.
- Hamilton C, 2015. 'Australia hit its Kyoto target, but it was more a three-inch putt than a hole in one'. *The Conversation*. <https://theconversation.com/australia-hit-its-kyoto-target-but-it-was-more-a-three-inch-putt-than-a-hole-in-one-44731>.
- Harris R, 2021. 'Boris Johnson outlines why Scott Morrison was rejected to speak at climate summit', *The Sydney Morning Herald*. <https://www.smh.com.au/politics/federal/boris-johnson-outlines-why-scott-morrison-was-rejected-to-speak-at-climate-summit-20210322-p57d2o.html>.
- Hook L and Sanderson H, 2021. 'How the race for renewable energy is reshaping global politics', *Financial Times*. <https://www.ft.com/content/a37d0ddf-8fb1-4b47-9fba-7ebde29fc510>.
- Huaxia, 2021. 'China to control, phase down coal consumption in next decade: Xi', *Xinhuanet*. http://www.xinhuanet.com/english/2021-04/22/c_139899306.htm.
- Hurst D, 2021. 'Europe trade talks: Australia urged to be "more ambitious" on climate', *The Guardian*. <https://www.theguardian.com/australia-news/2021/feb/11/europe-trade-talks-australia-urged-to-be-more-ambitious-on-climate>.
- IGCC (Investor Group on Climate Change), 2021. *587 investors managing \$46 trillion in assets urge governments to take action to accelerate climate investment before COP26*. Media Release, 14 September 2021. <https://igcc.org.au/587-investors-managing-46-trillion-in-assets-urge-governments-to-take-action-to-accelerate-climate-investment-before-cop26/>.
- IPCC (Intergovernmental Panel on Climate Change), 2014. *Chapter 29: Small Islands*. Fifth Assessment Report. Working Group III: Impacts, Adaptation, and Vulnerability. https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-Chap29_FINAL.pdf.
- IPCC, 2021. *Climate Change 2021: The Physical Science Basis*. Working Group I contribution to the Sixth Assessment Report. <https://www.ipcc.ch/report/sixth-assessment-report-working-group-i/>.
- International Energy Agency, 2020. *Renewable power is defying the COVID crisis with record growth this year and next*. <https://www.iea.org/news/renewable-power-is-defying-the-covid-crisis-with-record-growth-this-year-and-next>.
- Jotzo F, Pickering J and Wood P J, 2011. *Fulfilling Australia's international climate finance commitments: Which sources of financing are promising and how much could they raise?* <https://apo.org.au/node/27693>.
- Kemp J, McCowage M and Wang F, 2021. 'Towards Net Zero: Implications for Australia of Energy Policies in East Asia', *Reserve Bank of Australia*. <https://www.rba.gov.au/publications/bulletin/2021/sep/pdf/towards-net-zero-implications-for-australia-of-energy-policies-in-east-asia.pdf>.
- Kreienkamp F et al., 2021. 'Rapid attribution of heavy rainfall events leading to the severe flooding in Western Europe during July 2021', *World Weather Attribution*. <https://www.worldweatherattribution.org/wp-content/uploads/Scientific-report-Western-Europe-floods-2021-attribution.pdf>.

Lee Z, 2021. 'Severe flooding hits West Java and Jakarta in Indonesia', *South China Morning Post*. <https://www.scmp.com/video/asia/3122831/severe-flooding-hits-west-java-and-jakarta-indonesia>.

Littlecott C, Roberts L, Senlen Ö, Burton J, Joshi M, Shearer C and Ewen M, 2021. 'No New Coal by 2021: The Collapse of the Global Coal Pipeline', *E3G*. <https://9tj4025ol53byww26jdkao0x-wpengine.netdna-ssl.com/wp-content/uploads/No-New-Coal-by-2021-the-collapse-of-the-global-pipeline.pdf>.

Manoa F, 2021. 'The Pacific Small Island Developing States' early advocacy on climate and security at the United Nations', *Griffith Asia Insights*. <https://blogs.griffith.edu.au/asiainsights/the-pacific-small-island-developing-states-psids-early-advocacy-on-climate-and-security-at-the-united-nations/>.

Morgan W, 2021. 'Ripple Effect: How climate inaction jeopardises our Pacific standing', *Australian Foreign Affairs*. <https://www.australianforeignaffairs.com/essay/2021/07/feeling-the-heat>.

Morton A, 2019. 'UN climate talks: Australia accused of 'cheating' and thwarting global deal', *The Guardian*. <https://www.theguardian.com/environment/2019/dec/16/un-climate-talks-australia-accused-of-cheating-and-thwarting-global-deal>.

Moses M, 2013. *The Role and Influence of the Alliance of Small Island States in UN Climate Negotiations*. <https://www.foe.org.au/articles/2013-04-16/role-and-influence-alliance-small-island-states-aosis-un-climate-change>.

Murphy K, 2021. 'Coalition inertia on climate undermines Australia's credibility in region, ex-diplomats warn', *The Guardian*. <https://www.theguardian.com/australia-news/2021/sep/27/ex-diplomats-warn-morrison-government-inertia-on-climate-undermines-our-credibility-as-a-regional-partner>.

NOAA (National Oceanic and Atmospheric Administration), 2021. *It's official: July was Earth's hottest month on record*. <https://www.noaa.gov/news/its-official-july-2021-was-earths-hottest-month-on-record>.

OECD (Organisation for Economic Co-operation and Development), 2021. *Economic Survey of Australia*. <https://www.oecd.org/economy/australia-economic-snapshot/>.

O'Malley N, 2021a. 'Strong climate targets make strong friendships, Fiji tells Australia', *The Sydney Morning Herald*. <https://www.smh.com.au/environment/climate-change/strong-climate-targets-make-strong-friendships-fiji-tells-australia-20210228-p576iu.html>.

O'Malley N, 2021b. 'UN climate official warns low ambition is costing Australian growth', *The Sydney Morning Herald*. <https://www.smh.com.au/environment/climate-change/un-climate-official-warns-low-ambition-is-costing-australian-growth-20210922-p58twu.html>.

Pacific Islands Forum, 2018. *Boe Declaration on Regional Security*. <https://www.forumsec.org/2018/09/05/boe-declaration-on-regional-security/>.

Pacific Islands Forum, 2021a. *Come with commitments to COP26: Forum Chair statement on IPCC Report*. Statement by Hon. Josaia V. Bainimarama, Chair, Pacific Islands Forum, Prime Minister of Fiji, on the IPCC Working Group 1 report on the Physical Science basis of the Sixth Assessment Report. <https://www.forumsec.org/2021/08/20/come-with-commitments-to-cop26-forum-chair-statement-on-ipcc-report/>.

Pacific Islands Forum, 2021b. "We can turn this around, if we act now." – SG Statement on IPCC Report. Statement by Henry Puna, Secretary General, Pacific Islands Forum, on the IPCC Working Group 1 report on the Physical Science basis of the Sixth Assessment Report. <https://www.forumsec.org/2021/08/10/sgipcc0821/>.

Parkinson G, 2021. 'New AEMO boss wants Australian grids ready to handle 100pct renewables by 2025', *Renew Economy*. <https://reneweconomy.com.au/new-aemo-boss-wants-australias-grid-to-handle-100-pct-renewables-by-2025/>.

Philip S Y et al., 2021. 'Rapid attribution analysis of the extraordinary heatwave on the Pacific Coast of the US and Canada June 2021', *World Weather Attribution*. <https://www.worldweatherattribution.org/wp-content/uploads/NW-US-extreme-heat-2021-scientific-report-WWA.pdf>.

Raper A, 2021. 'NSW government sets more ambitious 50pc emissions reduction target for 2030', *ABC News*. <https://www.abc.net.au/news/2021-09-29/nsw-new-carbon-emissions-reduction-target-for-2030/100498444>.

Rincon P, 2020. 'UK can be "Saudi Arabia of wind power" – PM', *BBC News*. <https://www.bbc.com/news/science-environment-54285497>.

Sachs J D, Kroll C, Lafortune G, Fuller G, and Woelm F, 2021. *Sustainable Development Report 2021*. Cambridge University Press. <https://s3.amazonaws.com/sustainabledevelopmentreport/2021/2021-sustainable-development-report.pdf>.

Scully J, 2020. 'Solar tariffs in India hit record low after Gujarat's 500MW auction', *PV Tech*. <https://www.pv-tech.org/solar-tariffs-in-india-hit-record-low-after-gujarats-500mw-auction/>.

Shields B, 2020. 'Australia's Paris accord climate targets no barrier to EU trade deal: Birmingham', *The Sydney Morning Herald*. <https://www.smh.com.au/world/europe/australia-s-paris-accord-climate-targets-no-barrier-to-eu-trade-deal-birmingham-20200615-p552vq.html>.

State Department, 2021a. *US-China Joint Statement Addressing the Climate Crisis*. <https://www.state.gov/u-s-china-joint-statement-addressing-the-climate-crisis/#:~:text=The%20United%20States%20and%20China,and%20urgency%20that%20it%20demands>.

State Department, 2021b. *Secretary Kerry Participates in the UN Security Council Open Debate on Climate and Security*. <https://www.state.gov/secretary-kerry-participates-in-the-un-security-council-open-debate-on-climate-and-security/>.

Storlazzi C, Gingerich S, Dongeren A V, Cheriton O, Swarzenski P, Quataert E, Voss C I, Field D, Annamalai H, Piniak G and McCall R, 2018. 'Most Atolls Will be Uninhabitable by the mid-21st Century Because of Sea-Level Rise Exacerbating Wave Driven Flooding', *Science Advances*, vol 4. no. 4. <https://advances.sciencemag.org/content/4/4/eaap9741>.

Tasmanian Government, 2021. 'Tasmania's greenhouse gas emissions', *Department of Premier and Cabinet*. http://www.dpac.tas.gov.au/divisions/climatechange/climate_change_in_tasmania/tasmanias_emissions.

Taylor L, 2015. 'Welcome to the wonderful world of climate talks, where less means more', *The Guardian*. <https://www.theguardian.com/australia-news/2015/nov/27/welcome-to-the-wonderful-world-of-climate-talks-where-less-means-more>.

Taylor J, 2021. 'More than 1,000 homes will be without power until July after Victoria's storms', *The Guardian*. <https://www.theguardian.com/australia-news/2021/jun/19/more-than-1000-homes-will-be-without-power-until-july-after-victorias-storms>.

Thomas A, Pringle P, Pfleiderer P and Schleussner C F, 2017. *Briefing note on Tropical Cyclones: Impacts, the link to Climate Change and Adaptation*. <https://climateanalytics.org/latest/tropical-cyclones-impacts-the-link-to-climate-change-and-adaptation-briefing/>.

Toscano N and Foley M, 2021. 'Japan's clean energy push a threat to Australian coal, LNG exports', *The Sydney Morning Herald*. <https://www.smh.com.au/business/companies/japan-s-clean-energy-push-a-threat-to-australian-coal-lng-exports-20210722-p58bzq.html>.

UK Government, 2020. *The Ten Point Plan for a Green Industrial Revolution: Building back better, supporting green jobs, and accelerating our path to net zero*. <https://www.gov.uk/government/publications/the-ten-point-plan-for-a-green-industrial-revolution>.

UK Government, 2021. *Global Britain in a competitive age: The Integrated Review of Security, Defence, Development and Foreign Policy*. <https://www.gov.uk/government/publications/global-britain-in-a-competitive-age-the-integrated-review-of-security-defence-development-and-foreign-policy>.

UN Climate Change, 2021. *Nationally Determined Contributions under the Paris Agreement: Synthesis report by the UNFCCC Secretariat*. <https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs/nationally-determined-contributions-ndcs/ndc-synthesis-report>.

UN Security Council, 2007. *Security Council Holds First-Ever Debate on Impact of Climate Change*. <https://www.un.org/press/en/2007/sc9000.doc.htm>.

Watts J, 2021. 'Last month was worst July for wildfires on record, say scientists.' *The Guardian*. <https://www.theguardian.com/world/2021/aug/06/last-month-worst-july-wildfires-since-2003>.

White House, 2021a. *Executive Order on Tackling the Climate Crisis at Home and Abroad*. <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/>.

White House, 2021b. *Remarks by President Biden Before Signing Executive Actions on Tackling Climate Change, Creating Jobs, and Restoring Scientific Integrity*. <https://www.whitehouse.gov/briefing-room/speeches-remarks/2021/01/27/remarks-by-president-biden-before-signing-executive-actions-on-tackling-climate-change-creating-jobs-and-restoring-scientific-integrity/>.

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