CLIMATE COUNCIL

G'DAY COP27: AUSTRALIA'S GLOBAL CLIMATE RESET

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Cover image: "Wind Turbines in the Sinai Desert, Hurghada, Egypt." Anton Petrus via Getty Images.

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

The year since the last United Nations climate talks has been one of continuous climate extremes with records tumbling from Lismore to Lahore.

- Since the last Conference of the Parties (COP) in November 2021, the climate crisis has dramatically escalated with extreme weather records broken on every continent.
- Some countries and regions have faced multiple disasters, swinging from deadly heat and drought into cataclysmic floods, with no time to recover.
- The pressure for countries to do more to tackle the root cause of climate change - the burning of coal, oil and gas - has never been greater.

2

As we enter the age of climate consequences, decisive action on climate change, and greater international collaboration, has never been more important.

- Climate change and its impacts are accelerating. Without stronger collective action to reduce emissions, we are headed for a full-blown catastrophe.
- The world has already warmed by around 1.2°C, putting us at risk of triggering abrupt and irreversible changes that would be catastrophic for human societies. Every increment of warming raises those risks.
- If all countries around the world met their existing 2030 emissions reduction targets we would be headed to a dangerous 2.4°C of global warming.
- To ensure a survivable future countries must go well beyond existing commitments, and do so faster than intended during this make-or-break decade. There are no second chances to get this right.
- While we must do everything possible to limit future harms by ensuring global emissions plummet this decade, there is also an urgent need for greater support to communities worldwide with adapting to the escalating impacts of climate change that we are already facing.

3

The global race to net zero is redefining international relations, sparking a clean energy arms race between the US and China and accelerating Europe's shift away from fossil fuels.

- The global transition to net zero is accelerating even against significant geopolitical headwinds - with Russia's invasion of Ukraine prompting Europe to move more rapidly away from fossil fuels, and growing competition between the US and China on clean energy.
- This year saw record growth in renewable electricity generation around the world with new installations helping the world avoid more than 600 million tonnes of CO_2 emissions - significantly more than what Australia emits in a year.
- Australia returns to this year's UN climate conference with an improved 2030 emissions reduction target of 43% below 2005 levels by 2030 but, even so, it remains one of the weakest in the developed world. This must become a floor, not a ceiling, on our action.
- At the same time we attempt to cut emissions in some ways, we're fuelling the climate crisis in others. Australian fossil fuel exports have doubled since 2005, and there are dozens of new coal and gas projects under various stages of development.
- Australia is a major contributor to the global climate crisis. We could turn the tables by providing the clean energy resources the world needs for decarbonisation, which could help cut global emissions by eight percent.

4

Restoring our international climate reputation, and righting past wrongs, is clearly in our national interests.

- If the federal government is successful in bidding to host a COP for the first time it would be our largest ever diplomatic event; attracting up to 40,000 delegates and would come with high international expectations.
- Against a backdrop of worsening extreme weather disasters, conflict, a global food crisis, and upheaval in energy markets, international cooperation and solidarity has never been more important.
- COP27 presents a golden opportunity for Australia to demonstrate its climate credentials by:
  - Increasing Australia's overall commitment to international climate finance to $3 billion over 2020-2025, as a first step to contributing its fair share.
  - Supporting a new global fund to address permanent loss and damage from climate change.
  - Underscoring that its 43% emissions reduction target is a starting point.
  - Joining the growing list of countries that have set a clear deadline for exiting coal, and immediately ending public finance for fossil fuels.

1. Introduction

Australia will once again be in the spotlight at this year's United Nations (UN) climate talks in Egypt. After almost a decade of stalled climate policy, the federal government has legislated a new emissions reduction target to cut emissions by 43% by 2030 (from 2005 levels). This brings Australia closer to the rest of the developed world, with most wealthy nations planning to at least halve their emissions by 2030. This policy reset has enabled Australia to start rebuilding relations with key security allies and trading partners, and strengthen ties with Pacific island neighbours.

For too long, successive governments have argued that Australia cannot make a difference in global efforts to tackle the climate crisis. The truth is, as a fossil fuel heavyweight and potential renewables superpower, we have a big role to play in the global energy transition. The UN climate summit in Egypt (known as COP27) is the federal government's opportunity not only to demonstrate that Australia is back at the negotiating table, but that we're willing and able to play a serious role in rolling out the solutions we need at the scale and pace that the science demands.

Australian diplomacy matters. For the first ever, Australia will formally bid to host the UN climate talks in partnership with the Pacific. With a responsible international climate agenda, Australia could play a critical role in reinforcing global cooperation and brokering the next phase of climate action. Our country will also play a key role in the export of clean energy commodities and critical minerals that other nations need to decarbonise their economies. In Egypt we can signal to the world that Australia intends to become a major renewable energy exporter.

This climate summit will occur against the backdrop of a deepening climate crisis. Already in 2022, we have witnessed weather records tumble across every single continent. Climate change is worsening extreme weather events that are devastating communities everywhere, from Lismore to Lahore. The impacts we are experiencing today are happening in a world that has warmed 1.2°C above the pre-industrial average, driven mainly by the burning of coal, oil and gas.

Time is fast running out if we are to avoid even worse climate disasters. The steps we take this decade to rapidly cut emissions will determine how bad things get. As the world's climate scientists have warned, any further delay will see the world "miss a brief and rapidly closing window of opportunity to secure a liveable and sustainable future for all" (IPCC 2022).

The Russian invasion of Ukraine casts a long shadow over the talks, and growing rivalry between the United States and China will make a global consensus more difficult to maintain. However, even in this time of growing geopolitical competition and uncertainty, the global shift toward net-zero emissions is gaining momentum. In fact, the war in Ukraine has prompted many nations to accelerate their transition away from fossil fuels, which will help to achieve energy security and independence. Meanwhile, the US this year passed the most significant climate legislation in its history, as it gears up to compete with China to lead the global energy transition.

The COP27 summit in Egypt is expected to focus on the provision of climate finance to help all nations cope with and address the climate crisis, as well as pushing countries to make good on the pledges they have already made. To play a successful role at the summit, Australia should immediately increase its overall commitment to international climate finance to $3 billion between 2020-2025;[1] rejoin the Green Climate Fund; and support a global loss and damage finance facility. Australia

Australia must back up its desire to preside over the global climate talks with more robust climate policy and finance commitments.

will also need to demonstrate it has the policies needed for steep emissions cuts this decade, and explain how it intends to strengthen and build on its current emissions reduction target.

In October the Australian government confirmed it will join 122 other nations and sign on to the Global Methane Pledge. This is welcome news, and demonstrates the power of collective action. Standing out from the pack will be crucial if Australia is to be successful in its bid to host these UN climate talks in two years time.

1 Australia's fair share of the current international goal of mobilising US$100 billion per year is around AUD$4 billion per year. See further discussion in Chapter 2.2.

BOX 1: WHAT IS COP27?

The Conference of Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) has been held each year since COP1 in 1995. This year is the 27th COP. The annual UN conference is where countries negotiate shared commitments to address the climate crisis, including binding agreements that are key to global cooperation, such as the 1997 Kyoto Protocol and the 2015 *Paris Agreement*. Nations also discuss the rules and processes for countries to meet commitments, as well as measuring their progress against agreed goals. Nearly 200 countries are represented at each year's climate summit, where world leaders, diplomats and negotiators are joined by tens of thousands of journalists, business-people and representatives of civil society, including the Climate Council of Australia.

During COP negotiations, countries also decide on a fair allocation of responsibility for addressing climate change (McDonald 2022). There is broad consensus that wealthy nations - who have benefitted from centuries of carbon-intensive industrialisation - should cut emissions first and the most. They should also help poorer nations with the resources needed to transition to clean energy and cope with worsening climate impacts.

What is on the agenda for COP27?

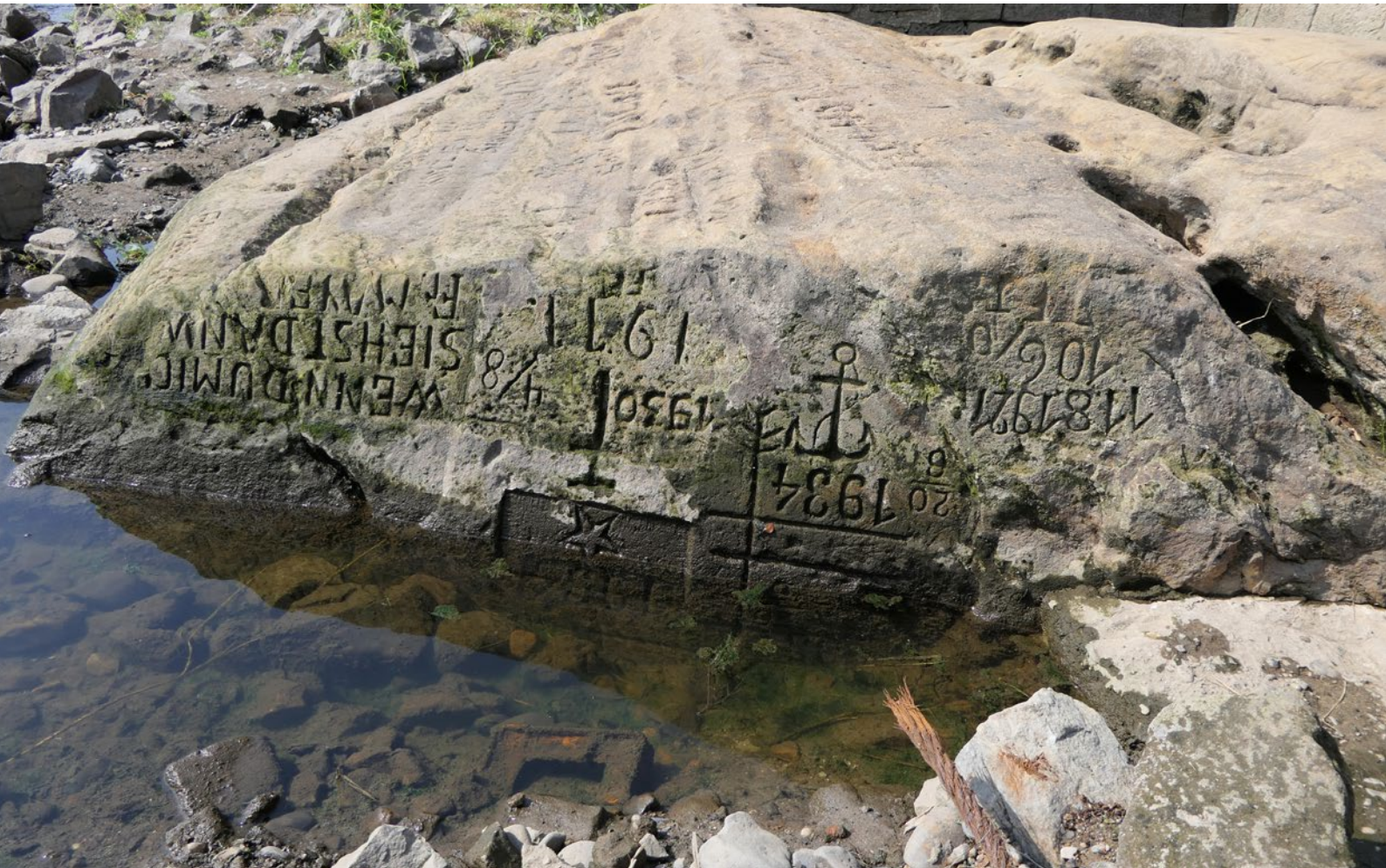
The COP27 talks - to be held in Egypt's resort town of Sharm-el-Sheikh - are expected to focus on climate finance. In previous negotiations, wealthy nations pledged to provide $US100 billion per year to help developing countries deal with the climate crisis. So far, developed countries have not met that promise. Allocating more money to help poorer nations adapt to climate impacts, and the provision of additional finance to address permanent loss and damage, will be key to maintaining trust and ensuring global cooperation.

In Egypt, countries will also discuss the urgent need to increase emissions reduction commitments. In the lead up to or during last year's COP26 talks in Glasgow more than 100 countries strengthened their national targets to cut emissions. Collectively, these commitments remain well short of what is required to meet the *Paris Agreement* goal of limiting warming to 1.5°C. Right now, the world is headed for 2.4-2.6°C of global warming this century, which would have catastrophic outcomes for all human societies and the ecosystems we rely on (UNEP 2022). Despite this, very few countries are expected to bring new emissions commitments to COP27.

The next major round of emissions reduction commitments are likely to be made at COP30 in 2025, when countries are expected to present 2035 targets. However COP27 will continue discussions on strengthening ambition as part of a Global Stocktake - a review of shared progress on reducing emissions and adapting to the impacts of climate change - and a new Mitigation Work Program. The European Union has also pledged to set a stronger emissions reduction target next year. Measures taken in response to Russia's invasion of Ukraine mean the EU is now expected to beat its 2030 target.

2. Climate change and the new age of consequences

Figure 1: A year of extremes. In 2022 Europe experienced its hottest summer on record, and one of its worst ever droughts. The extreme weather exposed 'Hunger Stones' on the banks of the Elbe River - in the Czech Republic - inscribed with the words "If you see me, weep". Carved in the 17th Century, the stones are a warning for the world - when the droughts come, hunger follows.



2.1 2022 has been a year of neverending extremes

In the months leading up to COP27 extreme weather records have tumbled in each and every continent.

People have experienced crippling droughts across East Africa, Western Europe, the US and China, devastating floods from Australia to Pakistan, deadly heatwaves in India, Japan and Europe, and one of the strongest hurricanes ever to strike the US (see infographic on p. 8-9). Some countries and regions have faced multiple disasters, swinging from deadly heat and drought into cataclysmic floods with no time to recover. After suffering through an extreme heatwave and drought conditions in spring, much of Pakistan was then swamped with the worst floods in its history.

The extreme climate-fuelled disasters of 2022 leave no doubt that we are now living with the consequences of decades of inadequate action on climate change. The costs to everyday people are high - measured in rising global hunger, economic damages, and impacts on our physical and mental health. This chapter emphasises the urgent need for stronger action to drive down global greenhouse gas emissions and support vulnerable communities to cope with worsening extreme weather.

2022 has been a year of repeated climate disasters, with some countries swinging from deadly heat and drought straight into cataclysmic floods.

RISING HUNGER AND INEQUALITY

Climate change, combined with conflict and the continued fallout from the Covid-19 pandemic, has contributed to a worsening global food crisis. Tragically, after years of hard-fought progress in reducing global hunger, the world is now going backwards (FAO 2022).

After a steep decline between 2002 and 2014, there's been an alarming uptick in recent years in the number of undernourished people worldwide (see Figure 2). Notably, this upward trend precedes the Covid-19 pandemic and the disruption in grain supplies brought on by Russia's invasion of Ukraine. In 2018, the Food and Agricultural Organisation of the United Nations (FAO) identified the increasing frequency and intensity of extreme weather as a key driver behind the rise in global hunger (FAO 2018).

Climate change has reduced global agricultural productivity by about 21% since 1961 (Oritz-Bobea et al. 2021). Unsurprisingly, the impact of climate change on hunger is significantly worse in countries where agriculture and food security are highly vulnerable to shifting rainfall patterns, higher temperatures, and severe drought, and where a large proportion of families depend on agriculture for their livelihoods (FAO 2018). This includes Ethiopia, Kenya, Somalia and other countries of East Africa, where years of insufficient rainfall have led to critical shortages of food and water. In August 2022, the World Food Program put the number of people in Ethiopia, Kenya, and Somalia struggling to find enough to eat at 22 million, with that number expected to rise (WFP 2022).

While no country or community is immune from the climate crisis, the impacts continue to be felt earliest and hardest by those countries and communities who have contributed the least to the problem and have the fewest resources with which to cope. Extreme weather events cause long-lasting socioeconomic impacts, especially in the most vulnerable communities (WMO 2022). As a result, climate change exacerbates inequality between and within countries.

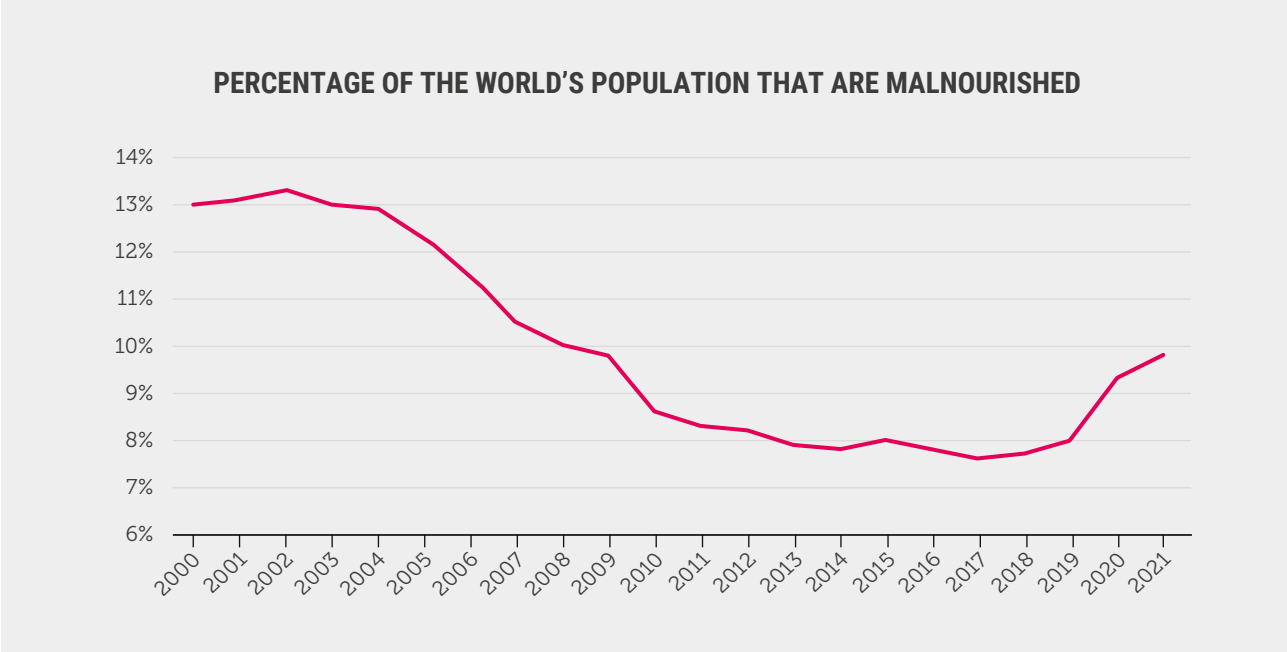


Figure 2: After many years of hard-won progress in the early 2000s, recent years have seen a sharp rise in the rate of global hunger, with climate change among the key causes. **Source:** FAOSTAT, Food and Agricultural Nation of the United Nations. https://www.fao.org/faostat/en/

COMPOUNDING IMPACTS: HITS ON ENERGY SECURITY, SUPPLY CHAINS AND INDUSTRIAL OUTPUT

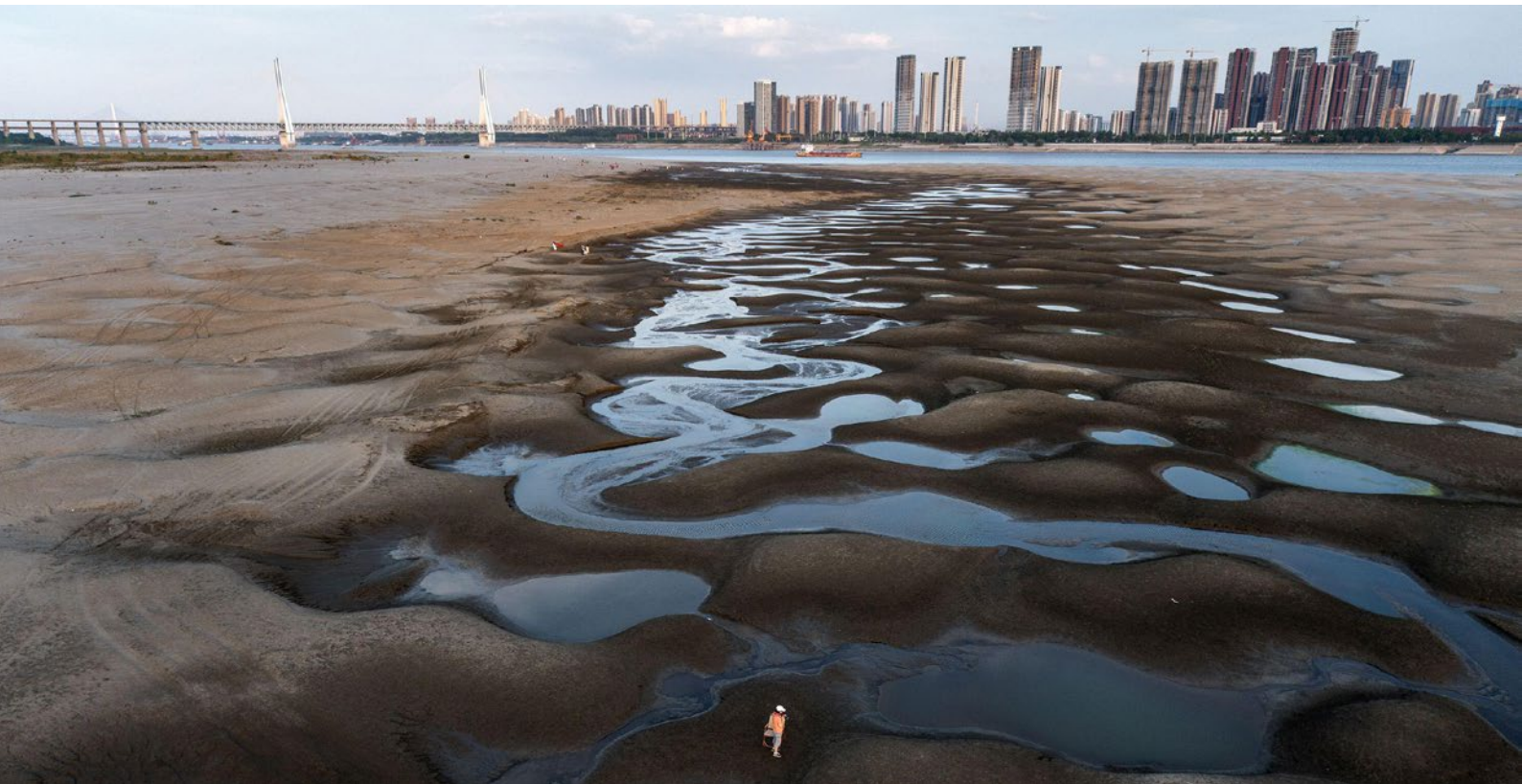
Extreme weather events have exposed major vulnerabilities in our global energy, industrial and transport systems to climate change, and the risks of cascading economic impacts should we fail to do far more to tackle the crisis.

In the summer of 2022, China experienced its longest and hottest heatwave on record. On some accounts this was the most severe heatwave ever recorded anywhere (Le Page 2022). Large swathes of the country experienced an extended period of very high temperatures, compounding a lengthy drought. The levels in many rivers, including China's longest river, the Yangtze, fell to extreme lows (Figure 3). In August, rainfall in the vast Yangtze River drainage area was 60% below average for that month (Reuters 2022).

The parching of major rivers including the Yangtze reduced the water available for hydropower. In the southwestern province of Sichuan, hydropower accounts for more than 85% of electricity generating capacity, and in normal times the province exports electricity to China's east, including Shanghai (S&P Global Commodity Insights 2022). In mid-August, Sichuan was forced to suspend or limit power supply to thousands of factories. Car manufacturer Toyota and electronics giant Foxconn were among the companies forced to temporarily suspend operations (Langley et al. 2022).

The Yangtze is also crucial to global supply chains as a shipping route. Shipping along sections of the river had to be halted due to the extreme low levels (Davidson 2022).

Figure 3: People walk along the exposed banks of the Yangtze, China, during an extreme drought, September 2022.



THE GROWING MENTAL HEALTH BURDEN OF CLIMATE-FUELLED DISASTERS

Climate change is increasingly taking a toll on people's mental wellbeing. In its latest and most comprehensive assessment of the impacts of climate change, the Intergovernmental Panel on Climate Change concludes that climate change has already had an adverse impact on mental health globally (IPCC 2022). The IPCC also projects that mental health challenges, including anxiety and stress, will continue to escalate, particularly among young people, the elderly, and those with underlying health conditions.

In 2022, communities in South East Queensland and Northern New South Wales faced a series of extreme downpours, driven by back-to-back La Niña events and exacerbated by climate change (Rice et al. 2022). These storms and floods became the costliest flood disaster in Australian history (Insurance Council of Australia 2022).

People affected by floods are at heightened risk of mental health issues, including post-traumatic stress disorder (PTSD) (Black Dog Institute 2021). A study into the mental health impacts of severe flooding that occurred in Northern New South Wales in 2017 revealed a significant toll in terms of depression, anxiety and PTSD, particularly among those who remained homeless after six months, and among socio-economically marginalised groups (Matthews et al. 2019).

At time of publication, there is limited data with which to assess the full mental health fallout from the more recent and far more severe flooding of 2022. Notably, some communities affected by the 2022 floods were also badly affected by bushfires during Australia's devastating 2019-20 fire season. Evidence from overseas suggests, unsurprisingly, that repeated exposure to extreme weather disasters can have a compounding impact and further damage mental health (French et al. 2019; Sansom et al. 2022).

Figure 4: Hitting home. 2022 has seen unprecedented flooding across eastern Australia.

2022

A YEAR OF NEVERENDING EXTREMES

This year extreme weather records have been broken on every continent, with some countries swinging from deadly heat and drought straight into cataclysmic floods.

	JANUARY	FEBRUARY	MARCH	APRIL	MAY
ASIA	China experienced its most intense heatwave on record, disrupting power supplies, industry and transport links. Pakistan endured its worst ever flooding disaster.				
			› India and Pakistan experienced one of the hottest March-April periods on record, with devastating impacts on crops, and critical shortages of water and power. At least 90 people were killed by the heat, with the true number likely much higher.		
AFRICA	South Africa faced its heaviest rainfall on record, killing hundreds. East Africa faced ongoing drought, with millions at risk of starvation.				
	› Beginning with Tropical Storm Ana in mid January, the island nation of Madagascar was hit by two Tropical Storms and three Tropical Cyclones within six weeks. Close to a million people were affected, with over 200 deaths reported.			› In mid-April, severe flooding and landslides killed 448 people, displaced over 40,000 and destroyed 12,000 houses in the south-east part of South Africa.	
EUROPE	Europe saw its hottest summer on record, smashing a record that had been set only a year before.				
AMERICAS	The US saw a series of intense and deadly summer heatwaves, including the most severe heatwave on record for the Western US.				
				› Just months after severe fires ravaged wetlands in northeast Argentina, in April the region was hit by widespread floods, leaving more than 100 people dead and cattle fields underwater.	
OCEANIA	Australia faced its costliest ever flood disaster.				
	› On 14 January, the town of Onslow in Western Australia reached 50.7°C, equalling Australia's hottest day on record. › From 18-23 January, Perth experienced a record six consecutive days over 40°C.		› Eastern Australia has seen many months of above-average rainfall, extreme downpours and flooding, influenced by back-to-back La Niña events and exacerbated by climate change. Between February and April a series of devastating floods affected large parts of South East Queensland and New South Wales. 22 people are known to have died. On 28 February the town of Lismore suffered its worst ever flood, with the river peaking at more than two metres above the previous record level. Sydney recorded by far it's wettest year on record. The cumulative rainfall for the year was more than had been recorded in any full-year.		

JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER
› In late June, Japan suffered its worst heatwave on record, with more than 15,000 people across Japan requiring emergency treatment.	› As of early July, floods and landslides in Assam (India) had claimed around 200 lives and affected around 600,000 people.	› The most severe heatwave in six decades and a record-breaking drought saw levels in some of China's rivers fall to extreme lows. Parts of the Yangtze – China's biggest river – dried up, leading to shortages of hydropower and forcing major companies to suspend operations. The prolonged drought has also seen much of Pyong Lake - the largest lake in China - dry up.		
		› While eastern parts of China were suffering record drought, western and northern parts saw severe flooding. In August flooding in Qinghai province killed at least sixteen people.		
		› In the worst climate- fuelled disaster of 2022, by August devastating flooding in Pakistan had affected more than 30 million people, and killed well over 1,000.		
		› Parts of East Africa, including Kenya, Somalia and Ethiopia, are enduring years of insufficient rainfall and the worst drought in decades. In August, the UN put the number of people at risk of starvation at 22 million.		› Flooding in Nigeria kills more than 600 people and forces over a millions from their homes.
› 2022 was Europe's hottest summer on record, surpassing the previous record, set just a year earlier in 2021, by a substantial margin. › Most of Europe also experienced severe drought over the summer. The drought may have been the worst that Europe has experienced for 500 years.				› Europe's summer of intense heat and drought ended with some extreme rainstorms, including in central Italy where rain and floods left at least nine people dead.
	› On 19 July, for the first time ever, the UK recorded temperatures over 40°C.			
› From June to August, a series of intense and deadly heatwaves swept many parts of the US. In July, extreme heat warnings were in effect in 28 states, with warnings that extreme heat would affect more than 100 million people. › The western US has experienced years of extremely dry and hot weather, with drought conditions now the norm. In August, Nasa reported Lake Powel – the second largest reservoir in the US (located in Arizona and Utah) – has shrunk to its lowest level.			› Death Valley in California saw the hottest September day recorded anywhere on Earth. › The September heatwave in the West was the most severe on record. Nearly 1,000 heat records were broken in one week.	
	› In late July, record rainfall brought widespread flash floods to parts of Missouri and Illinois (US).		› In late September, more than 100 people in Florida (US) were killed by Hurricane Ian – one of the strongest storms ever to strike the US mainland. Hurricane Ian also caused extensive damage in Cuba.	
› On 15 June, the Government of Kiribati declared a state of disaster due to severe drought and salinisation of water sources.				› Multiple towns in northern Victoria flooded.

2.2 The 2020s: our make-or-break decade

EVERY FRACTION OF A DEGREE OF WARMING MATTERS

The latest science, presented by the Intergovernmental Panel on Climate Change (IPCC) in its Sixth Assessment Report, shows humanity is at a precipice. Climate change and its impacts are accelerating. Without far stronger collective action, we are headed for a full-blown catastrophe. As explained in the final paragraph of the Summary for Policymakers of the Working Group II contribution to the Sixth Assessment Report:

> *"Any further delay in concerted anticipatory global action on adaptation and mitigation will miss a brief and rapidly closing window of opportunity to secure a liveable and sustainable future for all."* (IPCC 2022)

Under the *Paris Agreement*, governments agreed to "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change". The subsequent Special Report on Global Warming of 1.5°C revealed in compelling terms why we must continually strive to limit warming to 1.5°C and why every fraction of a degree of warming matters (IPCC 2018).

Today, at around 1.2°C of global warming, we are already seeing devastating impacts on communities worldwide through deadly heatwaves, floods, crippling droughts and monster storms. There is also alarming damage to the ecosystems that sustain human societies. Today's level of warming

We are already at risk of triggering abrupt and irreversible changes in our climate. Without far stronger collective action we are headed for a full-blown catastrophe.

has already proved perilous for coral reefs worldwide, including the Great Barrier Reef. Since 2016, the Great Barrier Reef has suffered four mass bleaching events (2016, 2017, 2020 and 2022) (AIMS 2022), resulting in significant loss of corals and the species they support. At a temperature rise of 1.5°C, coral reefs are projected to decline by a further 70-90%. At 2°C, tropical reef-building corals will be decimated. In other words, limiting global warming to 1.5°C rather than 2°C may be the difference between giving coral reefs and the communities who depend on them a fighting chance, versus their near complete destruction with knock-on effects for food security, coastal erosion, human wellbeing and planetary health that are hard to quantify.

Alarmingly, at 1.2°C we are *already at moderate risk* of triggering abrupt and irreversible changes that could prove catastrophic for human societies. This includes sudden declines in ocean circulation causing dramatic shifts in rainfall patterns, the rapid collapse of ice sheets causing a sharp acceleration in sea level rise, rapid release of methane – a highly potent greenhouse gas – from thawing permafrost in Siberia, and the collapse of the Amazon Rainforest. With every increment of further warming, the risk of crossing any one of these dangerous 'tipping points' increases. Evidence today suggests that warming beyond 2°C, which was once considered an appropriate upper limit, would be very dangerous for humanity indeed (Steffen et al. 2021).

Unfortunately, that is what the world is on track for. All of the 2030 emissions reduction targets named by countries, if fully implemented, can likely only limit warming to around 2.4-2.6°C (Climate Action Tracker 2021; UNEP 2022). Warming at this level would still be catastrophic: undermining the ecological systems that sustain human life and society, and in some settings constituting an existential threat (Steffen et al. 2021).

Protecting the people and places that we love requires almost all countries, and especially advanced economies like Australia, to substantially strengthen their efforts (see Chapter 6: Expectations in Egypt). Current commitments will only see global emissions reduced by about seven percent by 2030 (from 2019 levels). We need to reduce emissions by more than six times that to align with the goals of the *Paris Agreement* (Fransen et al. 2022). Based on the science, and considering Australia's very high emissions, economic strength, and untapped opportunities for renewable energy and other climate solutions, Australia should aim to reduce its emissions by 75% below 2005 levels by 2030 (Steffen et al. 2021).

> *"While there is no going back from some changes, what we do now will reduce the scale and the magnitude of the disaster. We have reached a fateful fork in the road. How we choose to respond to rising greenhouse gas emissions over the next five to ten years will determine our future climate conditions and the fate of human societies for thousands of years to come."*
> Joëlle Gergis, Humanity's Moment, 2022

ADDRESSING THE UNAVOIDABLE IMPACTS OF A WARMER WORLD

While we must do everything possible to limit future warming, we must also substantially step up efforts to cope with the climate impacts that are upon us as well as those which can no longer be avoided. That includes adequate measures to support communities facing permanent loss and damage due to climate change.

Wealthy developed countries, including Australia, have a clear responsibility under the UNFCCC and *Paris Agreement* to support vulnerable countries with their response to the climate crisis – via their commitments to emissions reduction, as well as their efforts to adapt to the many impacts of climate change.

A significant share of Australia's overall contribution to international climate finance is spent on climate change adaptation in the Pacific. However Australia has fallen far short of providing what can be reasonably considered a fair share towards the longstanding global goal of mobilising US$100 billion a year to support climate action in developing countries (Hardefeldt et al. 2022).

Based on Australia's economic capability, and our cumulative contribution to global greenhouse gas emissions, a reasonable estimate of Australia's fair share of the US$100 billion per year goal is AU$4 billion per year - or around 10 times what Australia currently provides (Hardefeldt et al. 2022). As a first step towards this, Australia should immediately increase its current commitment of providing AU$2 billion over 2020-2025 to AU$3 billion over that period (Hardefeldt et al. 2022).

The annual cost of climate change adaptation in developing countries could rise to US$500 billion by 2050 (UNEP 2021). Without access to adequate finance, vulnerable communities won't be able to cope with worsening weather extremes. Countries with fewer resources will be looking for further support from wealthy developed countries, like Australia, that have benefitted from fossil fuels. At COP27, developed countries should commit to significantly scaling up funding for adaptation (see Chapter 6: Expectations in Egypt). While accelerating the world's energy transition will largely depend on mobilising private finance, vulnerable communities are likely to continue to depend heavily upon adequate public finance to cope with impacts that are already underway.

Figure 5: A satellite dish being used to transport children across flood waters during the worst floods in Pakistan's history, August 2022.

Typically, countries and communities that have contributed the least to climate change are hit earliest and hardest by its impacts, and have the fewest resources to cope. This is exemplified by Pakistan, where emissions per person are less than a tenth of those in Australia. In 2022, Pakistan suffered a succession of compounding climate disasters, including the worst floods in its history (see infographic on p. 8-9).

Increasingly many communities, including in the Pacific, are experiencing climate impacts that are impossible to adapt to, leading to permanent loss and damage. This includes the growing risk of people being forced to flee or abandon their homes due to rising sea levels and destructive storms.

Addressing loss and damage will require financial support beyond what is already committed to supporting emissions reductions and supporting communities with adapting to the climate impacts. Vulnerable countries hope that COP27 will finally see the establishment of a dedicated loss and damage finance facility under the UNFCCC (see Chapter 6: Expectations in Egypt).

3. Climate action in a new age of competition

This year's UN climate summit will be held in Egypt against a backdrop of growing geopolitical competition. Even during this time of uncertainty, however, the world economy continues to move away from fossil fuels. The clean energy transition is unstoppable, and gaining momentum. Major powers - including the United States, China and the European Union - are integrating climate policy and energy security into all aspects of policy and statecraft.

Putin's war in Ukraine has disrupted global energy markets and prompted a rethink on energy security, especially in Europe where countries are accelerating plans to rapidly shift away from Russian fossil fuels. Increasingly, policymakers realise a faster shift to renewables is key to maintaining energy security. Countries moving away from coal, oil, and gas are less captive to fossil fuel exporters, and more resilient to disruptions in energy supply.

In 2022 China and the United States, the world's carbon polluting titans, are also competing to lead the global energy transition, with both powers making major investments in green industrial policy and developing new clean energy supply chains.

3.1 The world is committed to net-zero

The world is undergoing an energy transition that is as momentous and as significant a historical shift as the industrial revolution. Driven by the urgent need to tackle the climate crisis - and the economic advantages of renewable energy - this transition is reshaping the global economy and reconfiguring relations between countries.

The 2015 *Paris Agreement* marked an inflection point. After decades of politically fraught negotiations at the United Nations (UN), the *Paris Agreement* set out a shared framework for countries to tackle the climate crisis. Under the agreement governments must pledge stronger targets to cut emissions every five years. In this way, countries can cooperate while starting in different places, and being able to move at different speeds towards a net-zero global economy. Last year, the *Paris Agreement* was reaffirmed at UN climate talks in Glasgow, when the vast majority of countries strengthened their Paris targets (Steffen et al. 2021a).

While there remains a long way to go - and it's time for an urgent, large-scale transformation - the global direction of travel is now clear. The majority of countries, together representing more than 90% of the world economy and more than 80% of the global population, have now committed to achieving net-zero emissions (New Climate Institute 2022).

The world is undergoing an energy transition as significant as the industrial revolution. Many leading economies are redirecting investment away from fossil fuels and toward clean energy.

More importantly, many of the world's leading economies - including the United States, United Kingdom, European Union, Japan, South Korea, Australia and Canada - have signalled plans for deeper cuts to emissions by 2030. The G7 grouping of leading economies has pledged to halve its emissions this decade. Taken together, these commitments are a powerful market signal that redirects global investment from fossil fuels toward clean energy solutions (Bloomberg 2022). This year saw record growth in renewable electricity generation around the world. The International Energy Agency found this surge in renewables helped avoid more than 600 million tonnes of CO_2 emissions - which is significantly more than Australia's entire annual emissions (IEA 2022; DCCEEW 2021).

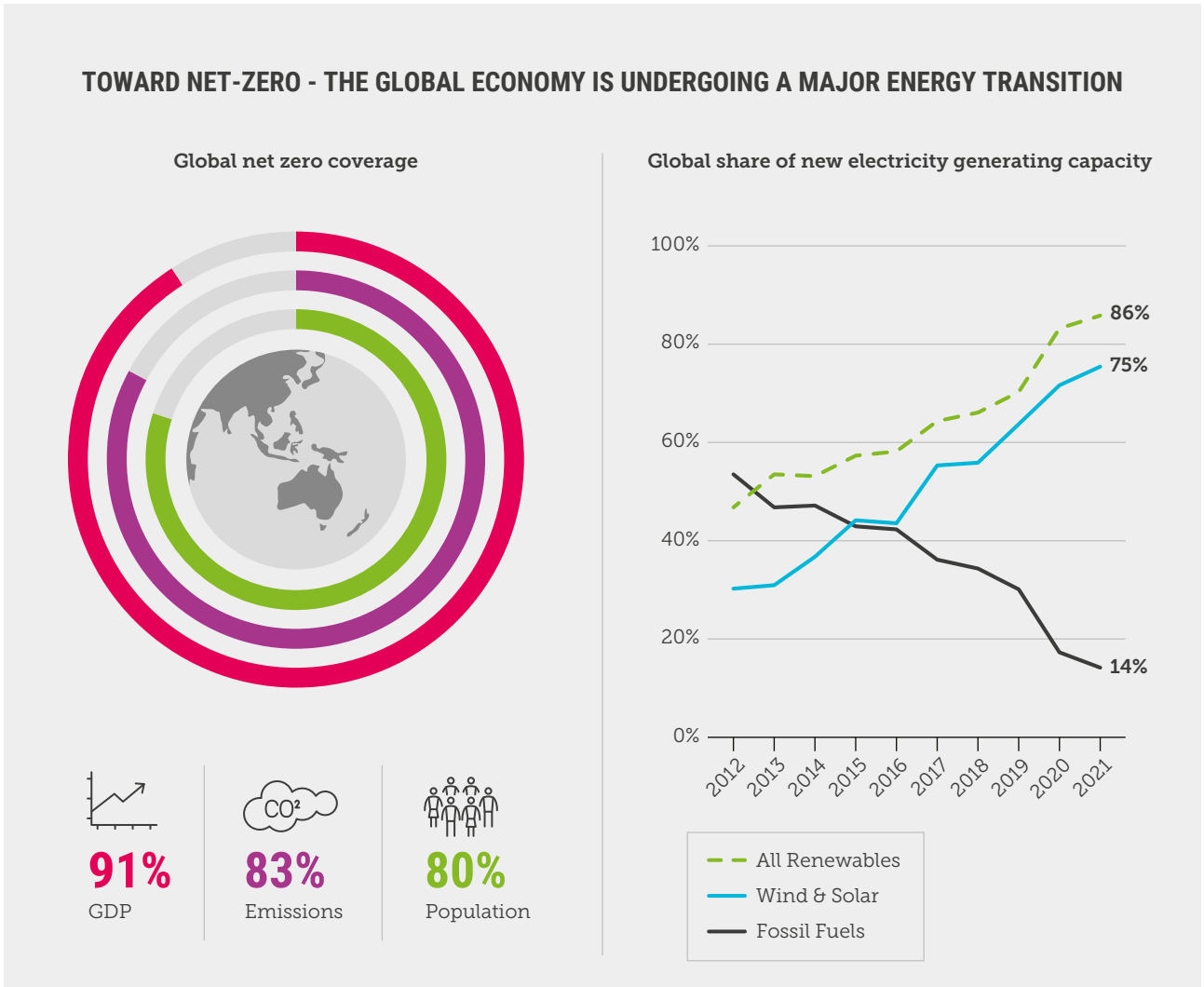


Figure 6: The global direction is increasingly clear. In the past three years, well over 100 countries - together representing more than 90 percent of the global economy - pledged to reach net-zero emissions. Each year, the amount of new electricity generating capacity from renewables far exceeds that from fossil fuels. **Data Sources:** (New Climate Institute 2022; Bloomberg 2022).

As major powers work to seize the economic and political advantages of leading the race to net zero, climate has become central to global geopolitics. Governments are increasingly aware of the security implications of a warming planet. In response, they are integrating climate into their industrial policy, their defence and strategic planning, their foreign policy and diplomacy.

Figure 7: Renewables to the rescue. Despite fears the war in Ukraine would slow the clean energy transition, 2022 saw record growth in renewable electricity generation around the world.

3.2 Renewables to the rescue

Russia's invasion of Ukraine in February 2022 precipitated a global energy crisis which has sped up the clean energy transition, as countries move to reduce their reliance on fossil fuel exporters. In response to the war, countries in Europe have set out a plan to pivot away from Russian gas and accelerate the uptake of renewable energy.

Like Australia, Russia is a major fossil fuel exporter - as the world's largest exporter of gas, second largest of oil, and third largest of coal. Europe has been especially reliant on Russian gas. Before the invasion, 40% of the gas used to heat European homes and drive industrial processes came from Russia (Associated Press 2022).

In the short term, the war has sent European policymakers scrambling to find new sources of gas ahead of the upcoming winter - the first in 50 years without Russian energy supplies. Major economies like Germany have built new import terminals to switch from piped Russian gas to liquefied gas shipments from the United States and the Middle East. France has also moved to keep existing nuclear power plants online, while other countries are burning more coal.

These short-term measures are not long-term climate solutions. In fact, Russia's invasion of Ukraine has accelerated the transition to clean energy in Europe by making it an issue of security. Almost all major EU economies have raised their renewable energy targets in response to Russia's invasion of Ukraine (Ember 2022). In May, the European Union set out a plan – called REpowerEU – to cut Russian gas imports by two thirds this year and to end them altogether before the decade is out. The strategy will cut Europe's overall gas use - not just Russian gas - by a third by 2030. It also sets more ambitious 2030 targets for renewable energy and energy savings; as well as requirements for new buildings to add rooftop solar installations (European Commission 2022). These measures mean European nations are now expected to exceed their 2030 target to cut emissions. European policymakers have agreed they will formally strengthen the EU's emissions reduction target next year (Abnett and Meijer 2022).

Russia's invasion of Ukraine has sped up Europe's shift away from fossil fuels. European nations plan to cut their use of gas by 30% by 2030.

The impact of higher energy prices in Europe has cascaded around the world. As gas exports are diverted to Europe, countries in Asia have looked for alternative energy sources. Amid fears of an energy shortage, China and other nations have boosted coal production (Bordoff and O'Sullivan 2022). These disruptions to global energy supply chains led to a surge of gas prices, including in Australia, with spillover impacts on electricity prices (Garnaut 2022). While Australia is a major gas producer, most of our gas is exported and domestic prices reflect global trends. As a result, households and businesses are paying much higher energy bills, while international corporations selling Australian gas have reaped massive windfall profits.

Ultimately, Russia's invasion of Ukraine will accelerate the global shift away from fossil fuels. Countries moving away from coal, oil and gas can break free from the shackles of the nations that produce them, and are less exposed to price hikes and disruptions to supply chains. As Australia's climate minister Chris Bowen told an audience in Washington in September: "the one supply chain no geopolitical crisis can disrupt is the supply of sunlight to our land, and the supply of wind to our coasts and hills" (Bowen 2022).

Figure 8: Rethinking energy security. In May 2022, EU Commission President Ursula von der Leyen announced plans to speed up Europe's switch to renewable energy in response to the war in Ukraine. European nations now expect to beat their 2030 emissions reduction target, and will formally strengthen their 2030 target next year.

3.3 A clean energy arms race between the US and China

Relations between the United States and China are today marked by intensifying strategic competition. How this rivalry plays out will have significant impacts for global efforts to tackle the climate crisis. While they have in the past cooperated to shape global consensus, in UN climate negotiations for example, 2022 marked the dawn of a more competitive era, as both countries move to secure advantage in the clean energy economy of tomorrow.

The United States and China are key to tackling the global climate crisis. They are the world's largest economies and biggest polluters. Together they are responsible for 38% of global greenhouse gas emissions (Larsen et al 2021). Any action they take to cut emissions will determine how fast the world continues to warm.

In recent times collaboration between these two 'carbon titans' has been key to global action on climate. It was a bilateral deal between the US and China that helped pave the way for the breakthrough 2015 *Paris Agreement*.

Both the US and China reinforced global cooperation at last year's COP26 talks in Glasgow. The US committed to cutting its emissions by 50% by 2030 and achieving net-zero emissions by 2050. China committed to a peak in carbon emissions by 2030, and to achieving carbon neutrality by 2060. They also issued a joint statement on Enhancing Climate Action in the 2020s, in which both nations committed to taking concrete actions to 'accelerate the transition to a global net zero economy', and pledged to deliver new emissions targets in 2025 (US Dept of State 2021).

The world's two carbon polluting titans - the US and China - are battling to secure advantage in the clean energy economy of tomorrow.

Figure 9: Wind farm in Henan Province, China. China built almost half the world's renewable infrastructure last year, but the United States has joined the race. In September, Congress passed the largest climate spend in US history, hoping to spur domestic clean energy manufacturing.

New climate legislation in the US suggests Washington is committed to a clean energy arms race with Beijing. The 'Inflation Reduction Act' - passed by Congress in September - allocates more than $500 billion to accelerate the transition to renewable energy, and to establish a clean energy manufacturing base in the US. This is the single largest climate spending in US history and eclipses the next-largest investment in clean energy - $140 billion from the 2009 American Recovery and Reinvestment Act (Matheisen and Colman 2022).

The legislation is intended to displace China as a key supplier to the US market of clean technology and components for solar, wind, batteries and electric vehicles. Through a range of incentives, the Inflation Reduction Act aims to establish a clean technology manufacturing base in the US. It is estimated the legislation will spur the creation of up to 1000 new clean tech companies (Bowen 2022).

Still, the US has a lot of catching up to do. China is the world's largest emitter — driven by its use of coal-fired power — but it is also the clear global leader in clean energy production and deployment. While the US installed 30 gigawatts (GW) of renewable energy last year, China deployed 180GW. In 2021, China alone built 46% of the world's renewable energy infrastructure (IEA 2022a). China also dominates global production of solar photovoltaics, batteries, wind-turbines and electric vehicles. More than 80% of solar PV production is concentrated in China, and this is expected to reach over 95% by 2025 (IEA 2022b). Increasingly, China's dominance of clean energy supply chains is raising concerns about future energy security. Just as Russian gas has provided Moscow with geopolitical leverage in Europe, China's near monopoly on clean energy supply chains risks future energy security in the Indo-Pacific if this continues.

4. Back in the race: Australia rejoins the global energy transition

After a decade of denial and delay, Australia has rejoined the global shift toward a clean energy economy. However, it remains toward the back of the pack, and has a lot to do in order to catch up. Australia's 2030 emissions target still lags behind most of the developed world, and major fossil fuel projects remain in the pipeline.

In September, Australia's federal parliament passed the first major climate legislation in a decade, which set a national target to cut emissions by at least 43% by 2030 (from 2005 levels). By setting a new 2030 target, Australia has come closer to the international consensus on climate, as most wealthy nations plan to halve their emissions by 2030. This has helped to renew ties with key security allies like the US and the UK; unlocked new trade deals (including a free trade agreement with the EU); reset relations with Pacific island countries; and sparked a new wave of investment in Australia's clean energy transition.

Prime Minister Anthony Albanese has explained the international significance of Australia's return to the fold on climate policy: "We were a global handbrake on a global challenge. And now we are seen as part of the solution. It has transformed our standing. Australia being part of the solution gives solace to other countries who want to be part of it. The difference that's made to our standing in the world can't be overstated" (Hartcher 2022).

4.1 Back in the pack, but far from leading

A new climate target - to cut emissions by 43% by 2030 - means Australia has rejoined the pack in the global race to net-zero emissions. However, Australia is by no means in a leading position with most developed countries having already pledged to halve their emissions this decade.

By 2030 the UK is planning to cut its emissions by 63%; the EU by 55%; the US by 50-52%; New Zealand by 50% and Japan by 46%. Canada - which is a major oil and gas producer - is planning to cut emissions by 40-45% by 2030, and has already set out a multi-billion dollar roadmap to shift toward a clean energy economy.

Thus, even with a revised 2030 target, Australia still has one of the lowest and most insufficient targets among developed countries.

Australia will need to set climate policy in line with the rest of the developed world if we are to attract new investment and keep up with major shifts in the world economy.

Australia's 2030 emissions target - cutting emissions by 43% by 2030 - still falls short of what the science says is needed. The last official review of Australia's climate targets was conducted by the Climate Change Authority in 2015. It found that to act in line with a global goal of limiting warming to 2°C, Australia should aim for a 45-46% emissions cut by 2030, based on 2005 levels (CCA 2015). Last year, a Climate Targets Panel - made up of independent climate scientists and experts - updated this analysis and found that to do its share in limiting warming to 1.5°C this century, Australia must cut emissions by 74% below 2005 levels this decade (Climate Targets Panel 2021). The Climate Council made a similar assessment based on the latest available science and considering Australia's national circumstances (Steffen et al 2021).

Effectively, our national emissions target must become a floor, not a ceiling, on Australia's climate efforts for this decade. Based on our country's high emissions, economic strength and vast untapped opportunities for renewable energy, Australia should be aiming to reduce its emissions to 75% below 2005 levels by 2030.

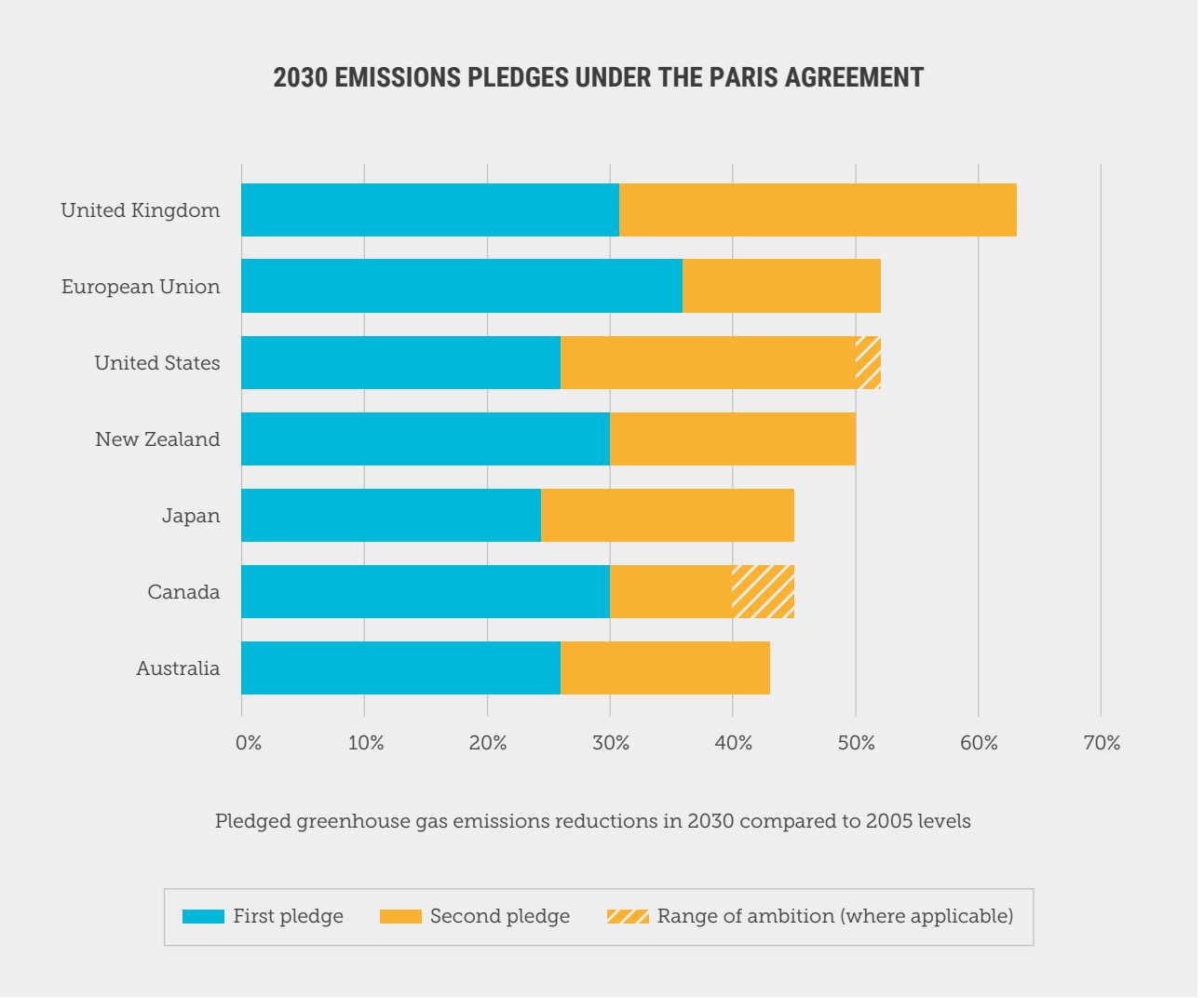


Figure 10: Australia is now more closely aligned to its international peers on intended climate action. In September Australia legislated a new 2030 target to cut emissions by 43% (from 2005 levels). Most other developed nations have set higher targets.

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. The US and Canada have made second pledges that are expressed as a range of ambition: 50-52% and 40-45% below 2005 levels respectively.

BOX 1: ANY NEW COAL AND GAS WILL UNDERMINE EFFORTS TO TACKLE THE CLIMATE CRISIS

While the federal government has set a stronger target to cut emissions at home, Australia continues to fuel the climate crisis through its enormous fossil fuel exports. Australia must act quickly to end government support for fossil fuels, halt new coal and gas projects and stop any expansion.

Fossil fuel exports are Australia's biggest contribution to the climate crisis. Emissions from Australian coal and gas burned in other countries are more than double our domestic emissions.[2] By one account, when emissions from fossil fuel exports are added, Australia's overall contribution to climate change represents 4-5% of total global emissions (Hare 2022).

Today Australia is the world's third largest fossil-fuel exporter, behind only Russia and Saudi Arabia. Australia is the world's largest exporter of coking coal - used to make steel; second largest exporter of thermal coal - used in coal-fired power stations to make electricity; and the largest exporter of liquified gas. Since 2005, Australia's fossil fuel exports have doubled (Moss 2021).

Continued expansion of Australian coal and gas is causing harm by locking in further extreme weather, driving sea level rise and catastrophic biodiversity loss. Digging up more Australian coal and gas risks putting the world's climate goals out of reach.

Globally, existing and under-construction oil and gas fields and coal mines are already sufficient to warm the world beyond 1.5°C (Trout et al. 2022; IPCC 2021). The International Energy Agency has also shown there is no place for investment in new fossil fuel supply. It modelled a pathway to net-zero emissions by 2050 that does not allow for the development of any new oil and gas fields (IEA 2021).

Australia plans a rapid shift to renewable power this decade. However, as of December 2021, more than 100 new fossil fuel developments remained in various stages (DISER 2021). If these projects all go ahead, they could result in nearly 1.7 billion tonnes of additional greenhouse gases a year, equivalent to around 5% of global industrial emissions (Morton and Pridham 2021). This includes proposed mega projects like Whitehaven's extension of its Narrabri underground coal mine in New South Wales, Woodside's extension of its North West Shelf gas project in Western Australia (the Scarborough gas project) (Flannery 2022), and plans to open up entire new gas reserves including the Beetaloo in northern Australia.

The Scarborough gas project - which has received support from the new federal government - is expected to emit 1.37 billion tonnes of greenhouse gases over its lifetime (Climate Analytics 2021). That's almost three times Australia's current annual emissions.

At the same time that Australia is cutting national emissions, it is doing plenty to add emissions to the atmosphere as the world's third largest fossil fuel exporter, only behind Russia and Saudi Arabia.

2 Author calculation based on DCCEEW 2021 and DCCEEW 2022.

BOX 1: CONTINUED

New coal and gas projects make it much harder for Australia to meet its own emissions reduction goals. New projects have a big impact on Australia's emissions at home even when most of the end product is shipped overseas. This is because emissions from processing fossil fuels for export count toward Australia's domestic target.

Emissions from coal and gas mines that are classified as 'new projects' by the federal government would add at least 8-10% to Australia's projected 2030 emissions. If domestic emissions from the massive Scarborough gas project are included, this rises to 15-17% by 2030 (Hare 2022).

To take just one example: the Narrabri gas project will add around 5 million tonnes of carbon dioxide equivalent ($MtCO_2e$) per year to Australia's domestic emissions, at a time when the federal government needs to find around 7.5 million tonnes of new emissions reductions each year to meet Australia's new 2030 target (Sackett 2020).

Companies like Woodside and Santos claim Australia should be developing new gas fields in the wake of Russia's invasion of Ukraine (Woodside 2022; Packham 2022). New projects in Australia would be unlikely to meet any short-term need overseas, as the development of gas fields takes many years. Instead, there is a real risk new gas projects will become stranded assets as destination markets move to decarbonise their economies. Ultimately, gas is a dangerous fossil fuel and there's no place for new gas projects if we are to tackle the climate crisis.

Figure 11: Approving any new gas projects will make it harder to meet Australia's 2030 emissions target.

4.2 Climate allies: Australia-US cooperation to cut emissions

In a warming world, climate action has become central to Australia's relations with international allies - especially with the United States. This year both the US and Australia passed significant climate legislation, which sets the stage for Australia and the US to join forces on the road to net zero. Prime Minister Anthony Albanese has told the Australian parliament that his government intends to make cooperation on climate change a "hallmark of the Australia-US Alliance" (Albanese 2021).

In July, Australia and the US signed a new Australia-US Net Zero Technology Acceleration Partnership. In September, Climate Change and Energy Minister Chris Bowen delivered a speech in Washington explaining that Australia would work with the US to diversify clean energy supply chains in the Asia-Pacific (Bowen 2022a). Australia and the US are also cooperating through the climate working group of the Quad - a diplomatic network that facilitates collaboration between the US, Australia, Japan and India.

US President Joe Biden is expected to attend the COP27 summit. This is an opportunity for Australia to show it is a serious climate ally by formally signing the Global Methane Pledge there - an initiative launched by the US to cut global methane emissions by 30 percent by 2030. Australia can go further by, for example, matching the Biden administration's goal of eliminating emissions from power generation by 2035 (Garnaut 2022).

Figure 12: Taking action on climate change has helped Australia to strengthen relations with its key security ally, the United States.

BOX 2: JOINING THE GLOBAL METHANE PLEDGE

At COP26 in Glasgow more than 100 countries – including the United States and the United Kingdom – pledged to reduce global emissions of methane by 30% by 2030. Methane is the second biggest contributor to climate change, behind carbon dioxide, having contributed almost half of the net rise in global average temperature since the pre-industrial era (IPCC 2021; Howden 2022).

At COP27, Australia will join key allies by signing up to the Global Methane Pledge. Countries joining the pledge agree to take voluntary actions as part of a collective effort to reduce global methane emissions by at least 30% by 2030 (from 2020 levels). A 30% global reduction in methane emissions could eliminate over 0.2°C of warming by 2030 - the equivalent of the entire global transport sector adopting net zero emissions technologies (IEA 2022c).

Cutting methane emissions will require Australia to do more to move away from gas production and to reduce fugitive emissions. Much of the discussion about Australia signing the methane pledge has focussed on agriculture - especially livestock - which is Australia's largest source of methane emissions. However, agricultural methane emissions have been declining steadily, reflecting improved animal and feed management (Howden 2022). Taking further steps to improve feed quality - to inhibit methane emissions - could actually help livestock to gain weight faster (Hristov et al. 2015).

By contrast, Australia's methane emissions from fossil fuels are rising due to the expansion of gas production (Canadell et al. 2020). Nearly all gas burned in Australia today, and exported abroad, is fossil methane, and large quantities of methane are wasted in the process; being emitted along the entire gas supply chain (Stock et al. 2020). Fugitive emissions alone - mostly leaks from coal and gas mining - are responsible for 34 million tonnes of carbon dioxide equivalent ($MtCO_2e$) per year; more than half the annual methane emissions from agriculture (Howden 2022).

The COP27 summit is an opportunity for Australia to show the world that it's a serious and trustworthy climate ally.

4.3 Resetting relations in the Pacific

Adopting a serious climate policy has helped reset relations with Pacific island countries. In the past, Australia has refused to back island states in global climate negotiations and has even tried to water down climate declarations from the Pacific Islands Forum (Morgan 2021). However, the new federal government has promised to work together with Pacific nations to tackle the climate crisis, including by co-hosting a future UN climate summit (potentially as soon as 2024). In July, then newly-elected Australian Prime Minister Anthony Albanese joined island leaders in Fiji to declare a Pacific Climate Emergency (Pacific Islands Forum 2022).

Pacific island countries are increasingly important to Australia's own security and strategic interests. For the first time in decades, the Pacific is now a region of geostrategic competition. A more powerful China is investing in an ocean going navy, and is seeking new security arrangements with Pacific island countries. In April this year Solomon Islands signed a security deal with China that allows for Chinese military presence and ship resupply (ABC 2022). This deal has set alarm bells ringing in Canberra - and in Washington - where security planners are especially concerned that Beijing could use infrastructure loans to secure a Chinese naval base in the Pacific (Morgan et al. 2022).

Figure 13: In her first week as Foreign Minister, Penny Wong attended the Pacific Islands Forum announcing Australia would stand "shoulder to shoulder with our Pacific family" to address the climate crisis.

For their part, Pacific island countries remain adamant that climate change is their primary security concern. Compared with geostrategic competition, the impacts of a warming planet – stronger cyclones, devastating floods, rising seas and dying reefs – are more immediate threats. In June this year, Fiji's defence minister Inia Seruiratu told a regional security dialogue: "machine guns, fighter jets, grey ships and green battalions are not our primary security concern. Waves are crashing at our doorsteps, winds are battering our homes, we are being assaulted by this enemy from many angles" (PINA 2022). In 2018, Pacific island leaders issued a regional security declaration explaining that climate change is the "single greatest threat" facing the region (Pacific Islands Forum 2018).

While Australia's new climate policies have been welcomed by Pacific nations, island leaders are clear they expect Australia to do more to address their key security threat. For low-lying island nations especially, the climate crisis is literally a fight for survival (Morgan et al. 2022). Pacific leaders are looking for Australia to accelerate the move away from coal and gas - including by ending public subsidies for fossil fuels. They want to see new financial commitments to help island nations adapt to climate impacts and address unavoidable loss and damage (Pacific Elders Voice 2022).

Pacific leaders expect Australia to do more to move beyond coal and gas, and to support island communities to deal with climate impacts.

4.4 Clean energy opportunities in a net-zero Asia

Australia is well placed to be a major clean energy exporter as the world transitions to net-zero emissions. Today, Australia is a major exporter of coal and gas to growing economies in Asia. However, the shift toward net zero has fundamentally reshaped Australia's economic prospects.

Key destination markets - such as Japan, China and South Korea, which together account for two-thirds of Australia's coal and gas exports - have set timelines for phasing out fossil fuels (Kemp et al 2021). This effectively sets a use-by date for Australia's fossil fuel industry.

To hasten the end of coal power in the region, the Asian Development Bank has established a new fund - the Energy Transition Mechanism - that is buying up coal-fired power stations in order to close them early. The multi-billion dollar fund - which has the backing of Amazon founder Jeff Bezos - could end up retiring half of coal power stations in Indonesia, the Philippines and Vietnam over the next 10 to 15 years (ADB 2022).

Increasingly, growing economies in Asia will want clean energy alternatives from Australia. Instead of coal and gas, they will want renewable energy, delivered directly via undersea cable, or stored as renewable hydrogen and ammonia. They will still want Australian iron ore, but increasingly they will want "green steel" - made using renewable hydrogen instead of coking coal. Demand for electric vehicles, batteries, and renewable energy technology (wind turbines and solar photovoltaics) will also drive Australian exports of critical minerals.

Australia has an important role to play in developing diversified and secure clean energy supply chains in the Asia-Pacific. China currently dominates inputs for clean energy manufacturing, which creates potentially problematic interdependencies in the region (Bowen 2022b). Australia is well-placed to work with allies and partners - especially Quad partners the United States, India and Japan - to develop new clean energy supply chains and shape more resilient pathways toward decarbonisation.

5. Australia's role in global decarbonisation

At the UN climate talks in Egypt Australia will again be in the international spotlight. The COP27 summit is an opportunity to show we are not just back at the table, but can be a major player in the global shift toward net-zero. What Australia does this decade will shape global climate efforts. Will we remain a fossil fuel heavyweight, or supply clean energy commodities and critical minerals that the world needs?

Over the past decade, the Coalition government incorrectly claimed Australia's actions make no difference to global climate efforts. The truth is, Australia has been and remains a major contributor to the global climate crisis. In addition to our domestic emissions, Australia is the world's third largest fossil fuel exporter (TAI 2019).

Australia could play a supersized role in global solutions as well. Australia is a member of the intergovernmental fora Organisation for Economic Co-operation and Development (OECD) and the Group of 20 (G20), and spends more than $6 billion each year on foreign affairs and diplomacy (Denniss and Behm 2021). In recent times Australia has become widely condemned as a climate-laggard, but it wasn't always this way.

In fact, Australia has been involved in innovative diplomacy to tackle international environmental threats. Australia was, for example, crucial in creating a global treaty to end whaling, and for a treaty to ban mining in Antarctica. Today, as a responsible middle power, Australia could reinforce global cooperation on climate change and broker the next stage of global climate action.

Australia can also play a significant role in tackling the climate crisis by exporting the clean energy commodities and critical minerals that other countries need to shift to net zero economies. Prime Minister Anthony Albanese says Australia has a once-in-a-generation opportunity to become a renewable energy superpower (Albanese 2022).

Recent estimates suggest that, by providing the resources the world needs for decarbonisation, Australia could cut global emissions by eight percent (Garnaut 2022). This would be the equivalent of cutting all the emissions of Europe and the UK, or as much as Japan reaching net zero twice over. The time has come to embrace our clean energy opportunity.

5.1 What will hosting an Australia-Pacific COP require?

The federal government wants to host the UN's biggest climate summit for the first time ever, in 2024. Hosting the UN climate talks would signal to the world that Australia is repositioning as a clean energy superpower, and is also a chance to strengthen relations in the Pacific.

Climate Change and Energy Minister Chris Bowen hopes Australia will host the COP29 summit in two years' time, and wants to co-host the summit with Pacific island nations, a move welcomed by island leaders.

In Egypt, Australian officials will be lobbying other nations to host the UN climate talks. This won't be an easy task. In order to host the UN talks in 2024, Australia effectively needs to make a case to jump the queue. It will need to negotiate with countries in Eastern Europe for the right to host as the summit is rotated annually between different UN regional groupings and Australia's region is not 'due' to host the talks until 2026 (Morton 2022). Australia could also possibly host in 2025 or 2026.

New investment in climate diplomacy is needed if Australia is to successfully host the UN climate talks. Diplomatic strategy should explicitly aim to limit global warming and promote the goals of the *Paris Agreement*. Australia's diplomatic network should also be tasked with promoting clean energy exports.

Australia has never hosted the UN climate summit, and doing so would be a chance to revive Australia's international reputation on climate. Australia has an unfortunate history of blocking and stalling progress in UN climate talks, primarily because our national interests have been incorrectly conflated with the fossil fuel industry's interests.

If we were to host, such a summit would be Australia's largest ever diplomatic event, with between 20,000 and 40,000 delegates expected to attend. The most likely host cities would be Sydney or Melbourne. Apart from the technical negotiations themselves, the summit would also become a large clean energy industry trade fair: a chance to showcase Australian businesses and export products necessary for the clean energy transition (Woodroofe 2022).

Hosting the annual UN climate summit would come with high expectations from the international community, especially from Australia's Pacific island neighbours. To show other nations it is serious about tackling the climate crisis, Australia will need to further

Hosting a UN climate summit would place Australia front and centre of global efforts to transition to a clean economy.

strengthen its 2030 emissions target to align with key allies like the US, and signal that it will set a much more ambitious 2035 target. Australia should also commit to providing more international climate finance, and to rejoin the Green Climate Fund. The federal government will also need to show it is listening to Pacific island nations, by providing support for a global financing facility for loss and damage. Finally, Australia must end all subsidies for fossil fuels and do much more to show that it is committed to moving away from coal and gas.

Figure 14: Primed for success: With a comparative advantage in renewable energy production and huge reserves of critical minerals, Australia is well-placed to export clean energy goods to the world.

5.2 Becoming a clean energy superpower

The COP27 talks are a chance to show the world Australia is now on a path to become a clean energy superpower. As the world shifts toward net-zero, Australia is set to become a leading exporter of the clean energy goods that other countries need to achieve their decarbonisation goals.

Australia has world-class resources for renewable energy, as the windiest and sunniest inhabited continent on the planet. Australia also has lots of suitable land for large-scale renewable energy projects. This means Australia can produce low-cost renewable electricity for export. The Sun Cable project, for example, is planning to build a $30 billion solar power plant built in the Northern Territory to supply clean electricity to Singapore via an undersea cable. By 2027, the Sun Cable project could provide 15% of Singapore's power supply (Steffen et al. 2021).

Australia can also play a central role in the global energy transition by converting abundant renewable energy resources into zero-carbon commodities, such as renewable hydrogen and ammonia, and green steel and aluminium.

Perhaps Australia's single biggest decarbonisation opportunity is to help eliminate carbon emissions in steel production. Over the past decade Australia's top-earning export has been iron ore, with 82.4% of it going to China (Griffith 2022).

Renewable energy could be used to convert iron ore into steel in Australia, in a process that replaces coking coal with renewable hydrogen. Producing green steel for export to China would help Beijing meet its decarbonisation goals and could cut global emissions around two percent - almost twice as much as Australia eliminating its own emissions (Song 2022).

Australia is also well placed to become an exporter of the minerals that are key to the energy transition. Global demand for batteries, electric vehicles and renewable energy technologies is expected to drive exports of critical minerals - including lithium, cobalt and rare earths. The International Energy Agency estimates global export revenue from energy transition minerals will overtake revenue from coal in the next decade (IEA 2021a). Worldwide, these minerals could be worth A$17.6 trillion over the next two decades (Cranston and Mizen 2021).

By conservative estimates, clean energy exports have the potential to generate 395,000 jobs for Australia by 2040 - with many of these jobs in areas impacted by the transition away from fossil fuel industries (Business Council of Australia 2021). In coming decades, Australia could grow a clean export mix worth $333 billion annually, almost triple the value of existing fossil fuel exports (Beyond Zero Emissions 2021).

6. Expectations in Egypt: Australia's time to shine

Figure 15: This year's UN climate summit will see thousands of diplomats gather in Egypt's coastal town of Sharm-El-Sheikh.

Against a backdrop of worsening extreme weather disasters, conflict, a global food crisis, and upheaval in energy markets, COP27 is an opportunity for international cooperation and solidarity at a time when it has never been more pressing.

Success at COP27 will require breakthroughs on a number of fronts, in particular, increasing financial support to developing nations, as well as countries remaining true to - and building on - the many promises made in Glasgow a year ago.

Positive moves by Australia can help shore-up global progress on climate action during this period of upheaval and uncertainty, and position Australia to start realising its potential as a climate leader and engine of the global energy transformation.

6.1 Increase funding to address climate impacts

The provision of financial support for reducing emissions, coping with extreme weather and other impacts of climate change, and addressing permanent loss and damage, is at the heart of negotiations under the UNFCCC and *Paris Agreement*.

At COP27, developed countries will need to demonstrate they have finally met the US$100 billion per annum commitment made back in 2009 to support climate action in developing countries. And they will need to show they are serious about doubling the amount of funding specifically for climate change adaptation, as agreed last year in Glasgow. At COP27 countries will also need to edge closer to agreement on a new collective goal for mobilising international climate finance, to take effect from 2025. A new goal will succeed the longstanding commitment from developed nations to provide US$100 billion per year.

The world's failure to reduce greenhouse gas emissions in line with the science means vulnerable communities are increasingly facing irreversible loss and damage from climate change (see Chapter 2.1 above). The reality of this loss and damage has been driven home by 2022's succession of extreme weather disasters, in particular the unprecedented flooding in Pakistan. Closer to home, a landmark ruling by the UN Human Rights Committee, which found the Australian Government's inaction in the face of climate change had violated the rights of Torres Strait islanders, will add further impetus to the arguments for new finance to address loss and damage (Morton and Karp 2022).

COP27 will need to finally see real progress on delivering finance to address loss and damage - beyond that already committed to help accelerate the energy transition and support communities with adapting to the impacts of climate change - by way of a new loss and damage finance facility.

Progress needed at COP27	Australia's role at COP27
› Establishing a loss and damage finance facility. › Fulfilling the longstanding commitment to mobilise US$100 billion a year in support for climate action in developing countries. › Scaling up support for climate change adaptation, in line with the Glasgow pledge to double funding by 2025. › Progress towards a new global climate finance goal, to take effect from 2025.	› Increase Australia's overall commitment of international climate finance to $3 billion over 2020-2025 - as a first step to fulfilling Australia's fair share - while continuing to ensure at least 50% of Australia's contribution goes to supporting climate change adaptation. › Rejoin the Green Climate Fund. › Support a global loss and damage finance facility and make an initial commitment of funds for addressing loss and damage.

6.2 Accelerate emissions reductions

At COP26, countries adopted the Glasgow Climate Pact, which was designed to accelerate progress under the *Paris Agreement* and keep alive the goal of limiting warming to well below 2°C and pursuing efforts to limit to 1.5°C. In recognition of the gaping chasm between current emissions reduction commitments and the scale and pace of action required, the pact requested countries "revisit and strengthen the 2030 targets in their nationally determined contributions (NDCs) as necessary to align with the *Paris Agreement* temperature goal by the end of 2022". At time of publication, only a handful of countries have further increased the commitments they took to Glasgow, and the world at large remains dangerously short of the action needed to avoid climate catastrophe (Lo 2022).

A successful outcome at COP27 will depend on many more countries coming forward with stronger goals, backed by the policies and investment needed to fully implement them. With its vast untapped renewable energy resources, Australia could do much more. Our current target does not yet align with those of our major allies - including the US.

At a minimum, Australia can demonstrate it has the policies to get on the path of steep emissions reductions through the 2020s, that it is determined to beat its current target of a 43% reduction below 2005 levels by 2030, and is willing to further strengthen this target in future.

COP27 will also see next steps in one of the most critical processes under the *Paris Agreement* - the Global Stocktake, a five-yearly review of global progress on both reducing emissions and adapting to the impacts of climate change. The first Global Stocktake began last year at COP26 and is due to conclude at COP28 in 2023 and will be critical to informing countries' next round of emissions reduction targets, as well as other climate action plans including their National Adaptation Plans (NAPs). It is vital that this crucial first Global Stocktake carries real political force including firm recommendations for strengthening collection action.

Progress needed at COP27	Australia's role at COP27
› More countries announce strengthened nationally determined contributions (NDCs), with the policies and actions to back them up. › A Global Stocktake with the political force to drive stronger future commitments.	› Demonstrate that the target of reducing emissions by 43% by 2030 is a floor not a ceiling, and that Australia will take concrete actions to get emissions plummeting this decade.

6.3 Increase Australia's climate commitments

Under the Glasgow Climate Pact countries agreed to revisit and strengthen their 2030 targets, to phase out coal, and to scale up support for climate action in developing countries.

Alongside the Pact itself, countries also signed on to global initiatives designed to accelerate action in some of the most critical areas, including by cutting methane emissions, ending fossil fuel financing, and ending deforestation.

It is vital that COP27 builds on these foundations, ensures accountability, and sees these pledges turned into concrete action. At COP26, Australia, then under the Morrison Government, was a drag on progress - failing to strengthen its 2030 target, refusing to join many of the deals designed to accelerate action, and drawing the ire of the international community.

In Egypt, Australia can play a constructive role that helps ensure COP27 builds on the momentum from Glasgow.

At a minimum Australia should join the initiatives that it evaded last year, including the Global Methane Pledge (see Box 2), and commitments to phase-out domestic coal use and end international financing for fossil fuels (UK COP26 Presidency 2021a, 2021b).

Progress needed at COP27	Australia's role at COP27
› Governments must demonstrate where they have made progress on commitments made at COP26.	› Join the Global Methane Pledge. › Join the growing list of countries that have set a clear deadline for existing coal, and immediately end finance for fossil fuels.

Strengthened international cooperation on climate change has never been more urgent, and Australia has never been in a better position to play a constructive role. By increasing its contributions to international climate finance, strengthening commitments to reducing Australia's emissions, and supporting vulnerable communities facing loss and damage from climate change, Australia can show it is serious about finally playing its part in tackling the global crisis.

Australia has the potential to be a major positive player in the world's energy transition and response to climate change. Doing so will help ensure a brighter, safer future for Australians and communities worldwide.

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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 peoples to Country.

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