CLIMATE COUNCIL

TOWARDS MOROCCO: TRACKING GLOBAL CLIMATE PROGRESS SINCE PARIS

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Key Findings

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Countries have shown strong commitment to ratifying the Paris Agreement and it will come into force shortly before the upcoming international climate meeting in Morocco.

- At the time of publishing, 85 countries have ratified the agreement. Because these countries also cover more than 55% of global emissions, the Paris Agreement will enter into force on 4 November 2016.
- To date, ten of the top twenty largest emitters, as well as the European Union have stepped up by ratifying the Paris Agreement.

2

The year since Paris has marked some of the most severe impacts of climate change we have seen to date, underscoring the need for urgent action.

- Record sea-surface temperatures driven by climate change resulted in devastating coral bleaching all over the world, with 93% of individual reefs on the Great Barrier Reef affected.
- India and the Middle East experienced extreme and deadly heatwaves, with temperatures reaching around 50°C.
- Louisiana experienced a 1-in-500 year rainfall event - the eighth such event in the US in the past twelve months.
- 2015, the year leading up to the Paris Agreement, was the hottest year on record. 2016 is virtually certain to be even hotter than 2015 and, yet again, become the hottest year on record globally.

3

Australia has made little progress on climate action since the Paris Agreement and other countries have expressed doubt about Australia's ability to meet its Paris commitments without serious changes.

- Australia, one of the highest per capita emitters in the world and among the top 20 countries for overall emissions, has yet to ratify the Paris Agreement.
- Australia's emissions reduction target of 26-28% by 2030 (on 2005 levels) relies on the introduction of energy productivity and vehicle efficiency measures, which the federal government has yet to bring into force.
- The most recent update of Australia's greenhouse gas emissions shows our emissions are rising.
- Countries including China and the United States have put more than 30 questions to the Federal Government, asking for detail about how Australia will meet its 2030 emissions reduction target and raising concerns about a lack of transparency over how the government calculates and reports emissions.

4

The Paris Agreement has triggered further momentum in the business and energy sectors as well as agreements between countries to strengthen their climate action.

- Renewable energy continues to go from strength to strength with record investment and installations of new power capacity. The costs for wind and solar power are continuing to fall and the number of countries with renewable energy targets has reached an all-time high of 173.
- North American leaders jointly pledged to reach 50% of the continent's electricity from clean power sources (including renewable energy) by 2025.
- 81 corporations, including some of the world's largest companies, have pledged to reach 100% renewable energy.
- Countries have agreed to limit emissions in a number of industries not covered by the Paris Agreement, including aviation and hydrofluorocarbons.
- Global coal consumption decreased for the first time this century. China's National Energy Administration has placed a moratorium on new coal fired power plants, and will close 500 million tonnes of coal production by 2020.
- However despite progress, greater efforts are needed to be on track to meet the 2°C target.

5

Countries will need to increase their emissions reduction pledges made under the Paris Agreement to avoid the most dangerous impacts of climate change.

- The next step under the Paris Agreement process is for countries to submit their long-term strategies that will outline how they will meet their emission reduction targets by 2020. However countries are expected to deliver them much earlier than that.
- Countries will need to increase their ambition over time to meet the goal of the Paris Agreement to limit global temperature rise to well below 2°C.

Introduction

A year ago in Paris, at the 21st session of the Conference of the Parties (COP21) for the United Nations Framework Convention on Climate Change (UNFCCC), world leaders agreed to limit global temperature rise to well below 2 degrees Celsius (°C) above pre-industrial levels, and to pursue efforts to limit temperature rise to only 1.5°C. The Paris Agreement is near universal, signed by 197 countries (UNFCCC 2016a). In order to meet the 1.5-2°C target, the Paris Agreement sets a goal to reach net zero greenhouse gas emissions globally in the second half of this century.

To come into force international treaties must be ratified after they are signed. This often requires an endorsement by each country's legislature. At the time of publishing, 85 countries had ratified the agreement. Because these countries also cover more than 55% of global emissions, this means the Paris Agreement will enter into force on 4 November 2016 (UNFCCC 2016a; UNFCCC 2016b).

In addition to setting an agreed limit on global temperature rise, the Paris Agreement also aims to increase the ability of countries to cope with climate change impacts by ensuring that global finance (both public and private) is consistent with the pathway to low greenhouse gas emissions and there are global funds to assist for developing countries to mitigate and adapt to climate change (UNFCCC 2016a).

China, the US, India and the EU have all ratified the Paris Agreement.

To date, ten of the top twenty largest emitters, as well as the European Union (EU), have stepped up by ratifying the Paris Agreement (UNFCCC 2016a). The top three emitters of carbon dioxide – China (27%), the United States of America (US) (15%) and India (7%) have all ratified the agreement (Global Carbon Project 2015; UNFCCC 2016a).

Australia was two years late to ratify the Kyoto Protocol (which came into force in 2005 and was ratified by Australia in 2007) (UNFCCC 2016c). Australia is now among the nations late to ratify the Paris Agreement, and is once again missing in action when it comes to tackling climate change.

This report provides an update on global progress since the Paris Agreement since it was signed in December 2015.

1. 2016: Climate Impacts Clear Worldwide

The year leading into the Paris Climate Conference, 2015 was the hottest year on record globally (NOAA 2016a).

This marks the fourth time this century that the annual global temperature record has been broken. Fourteen of the fifteen hottest years on record have occurred in the last fifteen years, continuing a long-term trend from the mid-20th century of rising temperatures (Figure 1).

The year-to-date (January to September) has seen global temperatures 0.99°C above the 20th century average, which is the warmest January–September period since records began in 1880 (NOAA 2016b). 2016 is virtually certain to be the hottest year on record globally, eclipsing the El Niño-fuelled record average temperature of 2015.

2016 is virtually certain to be the hottest year on record, continuing the long-term warming trend.

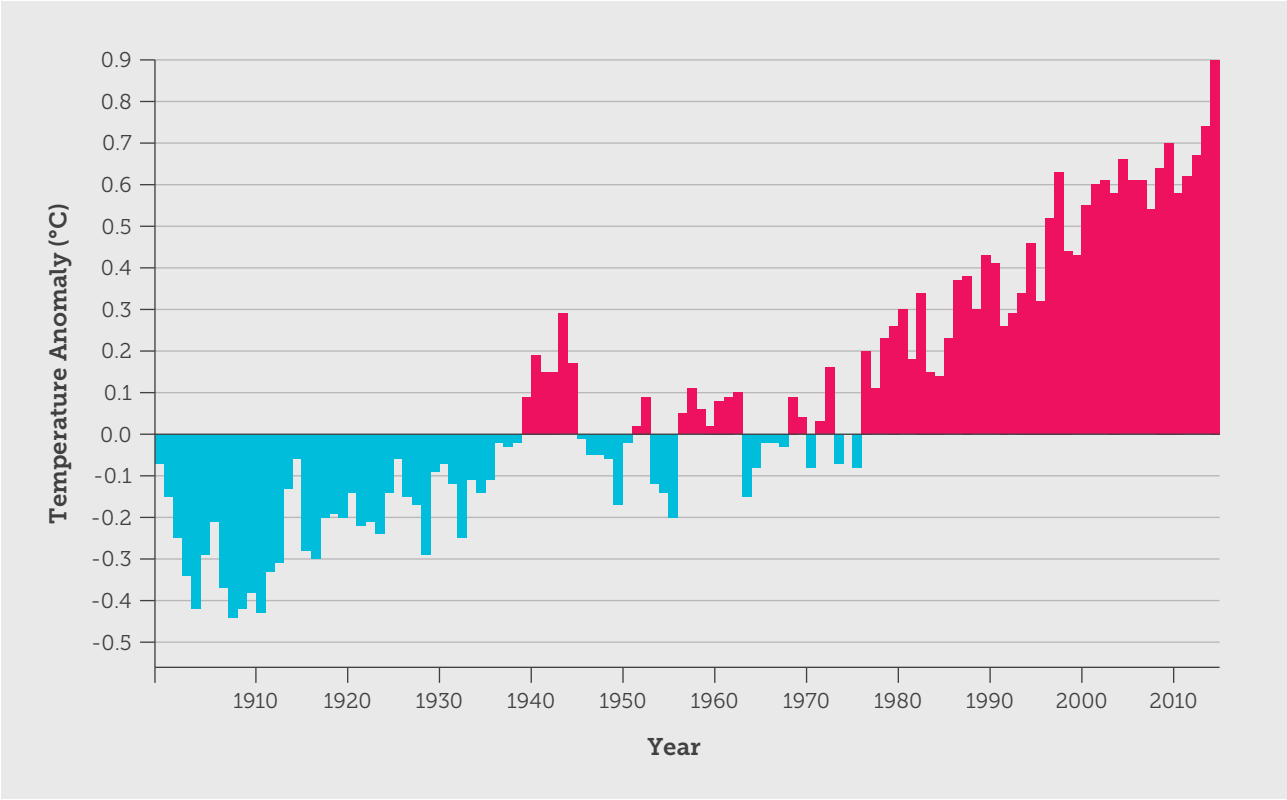

Figure 1: Annual global temperature anomalies to 2015, relative to global annual average temperature 1901-2000 (NOAA 2015a).

Warmer global temperatures driven by climate change are worsening extreme weather events around the world. Recently some of the most extreme heat events ever observed have hit a number of regions around the world. India experienced an intense heatwave in May 2016 with temperatures often exceeding 50°C (Perkins-Kirkpatrick et al. 2016; The Weather Channel 2016), causing numerous deaths, starvation, and suicide of drought-stricken farmers (Asian Correspondent 2016). In the previous summer the Middle East experienced a severe heatwave with temperatures exceeding 48°C for seven consecutive days (Climate Home 2015). Rising temperatures are creating an atmosphere than can hold more moisture, which is increasing the intensity of extreme rainfall events. For example, eight 1-in-500 year rainfall events have occurred in the US in the last twelve months to October 2016, including intense rainfall leading to severe flooding in Louisiana and in North and South Carolina as a result of Hurricane Matthew (NOAA 2016c).

Climate change is worsening extreme weather events world-wide.

Figure 2: Widespread and devastating flooding in Louisiana in August 2016 after intense rainfall (US Department of Agriculture).

Australia is already experiencing many adverse consequences of climate change (CSIRO and BOM 2015). In the last 50 years record hot days have doubled while heatwaves have become hotter and longer (Climate Council 2015). Extreme bushfire weather across southeastern Australia has increased. The risk of coastal flooding has increased as sea levels have risen, for instance coastal flooding events in Fremantle and Sydney have become three times more frequent during the 20th century (Church et al. 2006).

An increase in atmospheric greenhouse gases, primarily resulting from the burning of fossil fuels (coal, oil and gas), is driving climate change and increasing temperatures in Australia and globally. The Paris Agreement is a critical step for mobilising the global community to reduce emissions, in particular to require nations to set and achieve strong emissions reductions targets. Without rapid, strong action the world is poised for even hotter conditions ahead as the amount of greenhouse gases in the atmosphere continues to increase (IPCC 2014).

Australia is already experiencing adverse consequences of climate change.

2. The Global Energy Transition: Progress Since the Paris Agreement

2015, the year leading up to the Paris Conference was a landmark one for renewable energy. A new record was set for the amount of new renewable energy installed with 147GW of new power generation capacity added, representing more than 60% of all new power generation.

A record US$ 286 billion was invested in renewable energy globally, more than double the investment in new fossil fuelled power. Furthermore, global coal consumption decreased in 2015 for the first time this century, with China and many OECD countries reducing coal power generation (IEA 2016).

Renewable energy costs continued to fall, particularly for wind and solar photovoltaic power. Generating electricity from renewable energy is now cost competitive with new coal and gas plants. At the end of 2015, 173 countries had renewable energy targets in place (REN21 2016). Renewable energy now provides 23% of total electricity generation worldwide (IEA 2016).

Globally over the past five years, renewable energy has seen significant growth in installed capacity, proportion of generation, investment, jobs and the number of countries with policy targets for renewable energy (Table 1).

Table 1: Global renewable energy growth.

Year	2010	2014	2015
Cumulative installed (including hydro) (GW)	1,320	1,701	1,849
Proportion of global electricity generation (%)	20	23	23
Annual renewable energy investment (US$ billion)	211	273	286
Jobs (million)	3.5	7.7	8.1
Countries with policy targets	96	164	173

Source: IEA 2012; REN21 2011; REN21 2016.

Despite renewable energy's progress in recent years, current projections indicate that the rate of transition from fossil fuels to renewable energy needs to increase in order to be on track to meet the 2°C target, and greater efforts are required to remove policy uncertainty, to address non-economic barriers and to meet grid integration challenges (IRENA 2016).

Action on climate change is not limited to countries and governments. Eighty-one global corporations such as IKEA, Swiss Re, Apple, BMW, Coca-Cola, GM, Goldman Sachs, Google, Johnson & Johnson, Microsoft, Unilever, and Walmart have committed to reach 100% renewable electricity as part of the RE100 initiative (RE100 2016). No major Australian companies have joined the RE100 initiative to date, however a cross section of Australian business, union, research, environment, investor and social groups have established joint principles for climate action to limit temperature rise to less than 2°C above pre-industrial levels and the shared goal for Australia to reach net zero emissions (Australian Climate Roundtable 2015; RE100 2016).

3. Significant Impacts, Solutions and Policies Since the Paris Conference

Climate change has featured strongly through 2016, the year following the Paris Climate Conference. The year has seen a continuation of the extreme weather events influenced by climate change.

On the other hand, throughout 2016, a number of countries, particularly some of the largest emitters, have stepped up their commitments to reduce emissions and scale up renewable energy. Here, we outline some of the most significant extreme weather events influenced by climate change, as well as major renewable energy solutions and policies that will aim to reduce emissions in line with the Paris Agreement. Alongside are key climate change events (Figure 3).

Figure 3 (opposite page): 2016 - a year of climate impacts and action.

2016 A YEAR OF CLIMATE IMPACTS & ACTION

JAN CONFIRMED 2015 AS HOTTEST YEAR ON RECORD

FEB LONGEST GLOBAL CORAL BLEACHING EVENT ON RECORD

MAR CHINA MORATORIUM ON COAL PRODUCTION, & WILL CLOSE 500MT BY 2020

APR SMALL ISLAND NATIONS RATIFY PARIS AGREEMENT

MAY UNFCCC SYNTHESIS REPORT SHOWS FURTHER ACTION NEEDED TO MEET PARIS TARGETS

MAY EXTREME FIRE IN FORT MCMURRAY CANADA

MAY EXTREME HEATWAVES IN INDIA

JUN EXTREME RAINFALL & FLOODING IN PARIS

JUN UK COMMITS TO STRONGER TARGETS DESPITE BREXIT ANNOUNCEMENT

JUN NORTH AMERICAN LEADERS COMMIT TO CLEAN POWER BY 2025 50%

JUL 15TH CONSECUTIVE MONTH OF RECORD HIGH GLOBAL TEMPERATURES

JUL 40TH CONSECUTIVE JULY ABOVE 20TH CENTURY AVERAGE

AUG COSTA RICA REACHES 100 DAYS POWERED ENTIRELY BY RENEWABLE ENERGY

AUG RIO OLYMPICS DRAW ATTENTION TO CLIMATE CHANGE

SEP US & CHINA RATIFY PARIS AGREEMENT

OCT EU & INDIA RATIFY PARIS AGREEMENT

OCT GLOBAL AGREEMENT TO REDUCE HYDROFLUOROCARBONS

NOV PARIS AGREEMENT COMES INTO FORCE

DECEMBER 2015

The Paris Agreement – the world's first truly universal agreement on climate change – was signed on 12 December 2015. Surrounding the formal negotiations at Paris, were numerous other pledges and initiatives from others "non state" actors such as subnational governments (cities, states and regions) and major investors (C2ES 2015).

JANUARY 2016

Temperature data released in January confirmed that 2015 was once again the hottest year on record. The global average temperature was the highest since global records began in 1880 (NOAA 2016a). The temperature was 0.90°C above the 20th century average (relative to global annual average temperature 1901-2000), making it 0.16°C hotter than 2014, the previous record holder (NOAA 2015).

FEBRUARY

The longest global coral bleaching event was recorded in February, caused by record-breaking ocean temperatures driven by climate change and El Niño. Over one third of the world's reefs were affected by bleaching, with nearly all reefs experiencing some thermal stress (NOAA 2016d). Waters over the Great Barrier Reef were around 1 to 1.5°C above the recent long term average (2002-2011) for the same time of year (BoM 2016). As a result, 93% of individual reefs that make up Australia's Great Barrier Reef experienced some degree of bleaching, with the northern parts most severely affected (Coral CoE 2016).

MARCH

In March, China released its 13th Five Year Plan, outlining the country's social and economic development plans through to 2020. The plan outlines a number of climate change related targets, including capping the country's energy consumption, increasing the share of non-fossil fuels to 15% (of all energy consumed) and reducing energy intensity (energy per unit of GDP) by 15% by 2020. In further measures, China's National Energy Administration will not approve any additional coal production between 2016 and 2019 and will close 500Mt of coal production by 2020. The plan re-states China's commitment to introducing a national carbon emissions trading scheme (Meidan M 2016).

APRIL

April was a landmark month for the implementation of the Paris Agreement. It was the first opportunity for countries to officially ratify the agreement and set the wheels in motion for it to enter into force later in the year. In total, 15 countries, mostly small island nations, ratified the agreement on April 22, the earliest possible date. These nations are particularly vulnerable to the impacts of climate change, chiefly sea level rise.

MAY

In May, the UNFCCC released its synthesis report on the combined impact of countries' emission reduction commitments submitted to the Paris Climate Conference. The UNFCCC found if all countries' proposed emissions reductions are fully implemented, the global rate of emissions growth will slow but global emissions will still reach levels in 2030 around 44% higher than 1990 levels, or 38% higher than 2000 levels. This means the commitments at Paris currently have no chance whatsoever of keeping global temperature rise below 1.5°C and require much greater emission reduction efforts between 2025 and 2030 to keep global temperature rise below 2°C (UNFCCC 2016d).

The beginning of May marked the start of an extreme fire in Fort McMurray, Alberta, Canada. The blaze, one of the worst natural disasters in Canada's history, forced the entire town of nearly 90,000 people to evacuate. The Fort McMurray wildfire conditions were exacerbated by climate change and El Niño, which led to a drier than normal winter and reduced snowpack, depriving the forests of moisture which normally limits the extent and intensity of wildfires (Climate Central 2016; Independent 2016; New Yorker 2016; Figure 4). In May, India experienced its worst ever heatwave with temperatures in Phalodi, Rajastan reaching 51°C, which combined with drought conditions resulted in hundreds of deaths (Perkins-Kirkpatrick et al. 2016).

Figure 4: Fort McMurray wildfire.

JUNE

June began with extreme rainfall and flooding in Paris, the birthplace of the global climate agreement. The flooding led to the evacuation of tens of thousands of people, as well as art works being relocated from the Louvre (The Guardian 2016a).

On 23 June, a majority of United Kingdom (UK) citizens voted to leave the EU in a referendum that has been termed "Brexit" (short for Britain-exit) (Figure 5). While the United Kingdom has yet to begin the formal process for leaving the European Union, Amber Rudd the UK's Energy and Climate Change Secretary has indicated the country will continue to work towards its Paris commitments, stating:

> *"However we choose to leave the EU, let me be clear: we remain committed to dealing with climate change" (Time 2016).*

One week following the Brexit vote, the UK government adopted a new 2030 carbon emissions reduction target of 57% below 1990 levels, well beyond the UK's commitments made as part of the EU (a 2030 emissions reduction target of 40% below 1990 levels) (The Guardian 2016b).

In June, North American leaders – US President Barack Obama, Mexican President Enrique Peña Nieto and Canadian Prime Minister Justin Trudeau – announced a joint pledge for 50% of North America's electricity to come from clean power sources (including renewable energy) by 2025 (The White House 2016a; Figure 5).

The North American announcement includes plans for:

- scaling up renewable energy policies
- progressing cross-border transmission projects
- aligning energy efficiency standards
- working together to reduce potent greenhouse gas emissions (methane, black carbon, hydrofluorocarbons)
- accelerating clean and efficient transport, particularly clean vehicles
- leading globally on issues such as phasing out fossil fuel subsidies by 2025, promoting energy access and counting the cost of carbon for all policy measures.

In June, US President Barack Obama and India's Prime Minister Narendra Modi jointly agreed to ratify the Paris Agreement as soon as possible in 2016, to reduce emissions both in the immediate and longer terms and to work together to limit potent greenhouse gas emissions (The White House 2016b).

JULY

July marked the 15th consecutive month of record high global temperatures - the longest heat streak in 137 years of record keeping and the 40th consecutive July above the 20th century average (NOAA 2016e). July 2016 was 0.87°C above the 20th century average.

Figure 5: North American Leaders Summit.

AUGUST

The world's attention in August was on the Olympics in Rio de Janiero, Brazil. The host drew global attention to the issue of climate change in its Opening Ceremony by using the event to highlight temperature rise and the impacts of climate change such as melting polar ice and rising sea level (Washington Post 2016; Figure 6). Another South American country, Costa Rica achieved its goal of 100 days powered entirely by renewable energy, mainly hydroelectric and geothermal sources. The country now aims to reach a whole year powered by renewable energy (ABC 2016b).

SEPTEMBER

Momentum continued to grow in September for the ratification of the Paris Agreement, with a massive step forward when both China and the US officially ratified the agreement together in the lead up to the G20 meeting in Hangzhou, China (The Guardian 2016c). As countries that together account for 42% of global emissions (Global Carbon Project 2015), this marked a turning point in the road toward the agreement coming into force.

OCTOBER

The EU - made up of 28 member states together accounting for almost 10% of global emissions - urgently met in Brussels in late September to ensure its ratification came before the threshold for the agreement to come into force was met. The third biggest polluter India also ratified in early October. On 5 October, requirement for the Paris Agreement to come into force – ratification by more than 55 countries covering more than 55% of global emissions – was met (UNFCCC 2016b).

A further step towards reducing emissions was taken in October with the first global agreement tackling emissions from aviation (passenger and cargo flights). Airlines agreed to offset around 80% of emissions growth above 2020 levels. Offsets will include protecting forests and reducing carbon dioxide emissions, for example through support for renewable energy (The Guardian 2016d).

On 15 October, more than 170 countries agreed to reduce worldwide use of hydrofluorocarbons, a potent greenhouse gas used in air-conditioners and refrigerators

Figure 6: Rio Olympics Opening Ceremony.

at the 28th meeting of the Montreal Protocol on Substances that Deplete the Ozone Layer in Kigali, Rwanda. Overall, the agreement is expected to reduce carbon dioxide (equivalent) emissions by 70 billion tonnes - about two times the total global annual carbon dioxide emissions (The New York Times 2016).

October was an historic month, where requirements were met for the Paris Agreement to enter into force, airlines agreed to offset emissions growth and countries worldwide agreed to reduce hydrofluorocarbons.

4. What Next for the Paris Agreement?

The Paris Agreement will officially come into force on 4 November 2016. Countries that ratify the agreement will be legally bound by their commitments and the framework for future action on climate change.

Countries will meet in Marrakech, Morocco from 7-18 November 2016 to discuss implementation of the Paris Agreement. The meeting in Morocco will include discussions on how developed countries will assist vulnerable states to deal with the effects of climate change, on new ways of placing development and the civil society at the centre of the climate agenda and on how countries will meet their commitments.

A review of progress towards emissions reductions will occur in 2018, which if necessary will require countries to strengthen their national commitments to ensure the world stays on track to limit warming to 1.5-2°C.

Prior to 2020, countries will submit their long-term strategies (beyond 2030) for reaching zero net emissions by the second half of the century. A number of countries including Canada, Mexico, the United States and Germany have committed to putting forward their long-term plans by the end of this year (WRI 2016).

5. Australia's Progress on Tackling Climate Change

Australia is one of the highest per capita emitters in the world and ranks among the worst for energy use per capita and electricity use per capita (Next 10 2016). Australia's electricity is still overwhelmingly supplied by fossil fuelled power stations, particularly highly polluting and inefficient coal power stations (Caldecott et al. 2015) and currently has no national plan for transitioning away from these coal generators to a low carbon electricity supply.

Australia has committed to a 2030 emissions reduction target of 26-28% on 2005 levels and submitted this target as part of Australia's Intended Nationally Determined Contribution to the Paris Agreement in 2015 (UNFCCC 2015).

In July 2016, Australians voted in the federal election. The two major parties had different policies on energy and climate change; however both supported Australia's submission to the Paris Agreement (for emissions reductions of 26-28% by 2030 on 2005 levels) as a minimum target (Table 2).

Table 2: Climate and energy commitments by the major parties ahead of the 2016 Australian federal election.

Australian Labor Party	Coalition (Liberal and National Parties)
› reduce Australia's emissions by 45% by 2030 (on 2005 levels) and reach net zero emissions by 2050 › introduce an emissions trading scheme with a cap on emissions, with separate schemes for electricity and for large polluters › lift the renewable energy target to 50% by 2030 › restore $300 million of the $1.3 billion cut from the Australian Renewable Energy Agency › plan for paid coal plant exit › introduce emissions standards for light vehicles › establish $500 million fund for research, environmental programs and management for the Great Barrier Reef.	› reduce Australia's emissions by 26-28% by 2030 (on 2005 levels) › continue Direct Action Plan totaling $2.55 billion over 2014-2017 › divert $1 billion of Clean Energy Finance Corporation funding for water quality and clean energy projects targeting the Great Barrier Reef.

Source: ABC 2016a; Sydney Morning Herald 2016; The New Daily 2016.

The elected Liberal-National Coalition has proposed the following activities to meet its 2030 targets:

- Retaining the Emissions Reduction Fund and its Safeguard Mechanism
- Retaining the current 2020 Renewable Energy Target
- Introducing energy productivity and vehicle efficiency measures detailed in the National Energy Productivity Plan (released December 2015) which targets a 40% improvement in energy productivity between 2015 and 2030
- Phasing out very potent synthetic greenhouse gases (Australian Government 2015).

In the past year the Federal Government has made limited progress on emissions reductions measures and removed $500 million in funding from the Australian Renewable Energy Agency (ARENA) (Blakers and Corkish 2016). The government plans a review of climate and energy policies in 2017, which will examine the future of the Renewable Energy Target, energy efficiency and ARENA (ABC 2016b).

Australia has not yet ratified the Paris Agreement.

5.1 Direct Action the Emissions Reduction Fund and Safeguard Mechanism

The Direct Action Plan is currently the Federal Government's primary policy aimed at meeting its target of reducing greenhouse gas emissions to 5% below 2000 levels by 2020, and 26-28% below 2005 levels by 2030.

Central to the measure is the $2.55 billion Emissions Reduction Fund (ERF), which essentially provides financial incentives for emitters to reduce their emissions. At its core is an auctioning process where a business can "bid" with their emissions reduction projects, and the projects that can reduce emissions at the lowest cost are paid to do so. Projects supported to date include forest protection, tree planting and soil carbon projects and capturing methane from landfill or piggeries (Christoff 2015).

There have been three Direct Action auctions so far, using a total of $1.7 billion of the $2.55 billion allocated to the Emissions Reduction Fund, and resulting in the 'purchasing' of 143 million tonnes of carbon dioxide reductions. To put this in context, Australia needs to cut its CO_2 emissions by 236 million tonnes if it is going to meet its official target of 5% below 2000 levels agreed under the Kyoto protocol. Estimates reveal that if auctions continue at their current rate Australia will miss its 2020 target by millions of tonnes (Christoff 2015).

Additionally, from July 2016 a "Safeguard Mechanism" has been put in place, which aims to ensure that emissions reductions purchased at auction are not offset by increased emissions elsewhere in the economy (Australian Government 2016a; 2016b). The Safeguard Mechanism, which covers about 140 companies and about half of Australia's greenhouse gas emissions, sets baselines levels for companies at their highest level in the last five years, and baselines may be increased under certain circumstances, such as if a company expands production. Key criticisms of the Safeguard Mechanism, include that it allows for emissions to rise, potentially by as much as 20% by 2030 (Climate Institute 2015; Reputex 2015). The Safeguard Mechanism also does not address or limit in any way emissions resulting from the burning of Australian coal or gas which is mined and exported overseas. For example, emissions associated with coal from the proposed Adani Coal Mine would cancel out the abatement from the entire Direct Action plan in less than two years (Sydney Morning Herald 2016a).

According to initial analysis of the first auction (Christoff 2015), Direct Action faces a number of challenges, including the fact that only 1.5% of emissions reductions will be completed by 2020. Almost 70% of the purchased abatement from the three auctions (amounting to 98.5 million tonnes from 143 million tonnes of total abatement contracted) is in the form of vegetation sequestration, which neither reduces carbon emissions at source (i.e. pollution from electricity generation) or enables positive long-term changes in energy efficiency. Furthermore, much of the carbon stored in vegetation is vulnerable to return to the atmosphere (Climate Council 2016a).

While increasing carbon in land systems is important, it is no substitute for reducing emissions from the burning of fossil fuels (Climate Council 2016a).

According to the Federal Government, the Emissions Reduction Fund and Safeguard Mechanism are responsible for delivering nearly half of the emissions reductions required to meet our 2030 target (Australian Government 2015).

5.2 Renewable Energy

The Federal Government currently has no plans to extend the federal Renewable Energy Target (which targets 33,000GWh of large-scale renewable energy, or about 23.5% of electricity generation) beyond 2020 (ABC 2016b; Australian Government 2016c).

However in the past twelve months, Australian states and territories have increased their efforts with five out of the eight introducing or increasing state renewable energy targets (Climate Council 2016b). Some States have identified meeting the government's Paris commitment as a motivation for doing so.

5.4 Energy Productivity and Vehicle Emissions

In relation to energy productivity, the Federal Government has recently allocated $18 million towards research by Energy Consumers Australia, a building energy efficiency rating scheme and standards, appliance energy efficiency, and a gas supply strategy (Minister for the Environment and Energy 2016).

Australia continues to lag behind other countries for mandatory emissions standards for new cars. Mandatory fuel emissions standards set targets for new cars to meet lower carbon dioxide emissions (per kilometre travelled) over time. The overall emissions intensity of the car fleet is reduced over time as new, more efficient vehicles are purchased to replace older ones. In addition to reducing emissions from cars, mandatory emissions standards substantially reduce fuel costs for vehicle owners.

Mandatory emissions/ fuel economy standards now cover 80% of the global car market (IEA 2015). Australia remains in a small minority of OECD countries without mandatory emissions standards, even though barriers associated with protecting the local car industry no longer exist (Climate Change Authority 2014).

Australia first released a discussion paper on mandatory greenhouse gas emissions standards for cars in 2011, with no follow-up action taken in the successive years to change the Australian Design Rules (to implement the standards) (Parliament of Australia 2013). The current Federal Government has released a further discussion paper in February 2016, with stakeholder meetings in December 2015 and April 2016. The Federal Government has indicated that the next steps will involve drafting a regulation impact statement, undertaking a full cost benefit analysis and developing a draft implementation plan in March 2017 (Australian Government 2016d).

Mandatory vehicle emissions standards rely on old cars being replaced with new, lower emissions vehicles over time. Even if such standards were to be introduced soon, the rate of replacement means that it would take until 2025 to improve the emissions of around half of the cars on the road (Climate Change Authority 2014).

5.5 Are Australia's Emissions on Track?

Australia's greenhouse gas emissions are still growing. The most recent update of Australia's greenhouse gas emissions shows that emissions increased by 0.4% between 2014 and 2015 (Australian Government 2016e). Some sectors have reduced emissions in the past year, such as agriculture and fugitive emissions, while others such as electricity and industrial processes have increased.

Australia's current climate policies are not sufficient to achieve even its current commitment to reduce emissions by 26-28% by 2030 (on 2005 levels) (Climate Action Tracker 2015).

Furthermore, compared with other industrialised countries, Australia's emissions reduction target is among the weakest against a range of measures including per capita emissions reduction and emissions intensity (Climate Action Tracker 2015). Australia's current targets are considerably less ambitious than the targets recommended by the Climate Change Authority in July 2015, which advised Australia should reduce its emissions within a range of 45 to 65% below 2005 levels by 2030. The Climate Change Authority's recommendations are based on only a two-thirds chance of avoiding 2°C warming. For a stronger chance, the target should be greater emission reductions. Therefore, these recommendations should be seen as a bare minimum for Australia's contribution to tackling climate change in concert with the rest of the world.

Australia must cut emissions more deeply and rapidly if we are to contribute our fair share in meeting the climate change challenge.

5.6 Review of Australia's Submission to Paris Agreement

A technical review of Australia's submission to the United Nations Framework Convention on Climate Change found Australia provided insufficient details and its submission lacked transparency about emissions projections.

For example Australia did not include emissions projections for 2030, emissions for ships and aircraft engaged in international transport nor did it include an estimate of the impacts of climate mitigation actions (UNFCCC 2016e).

Australia's key allies and trading partners such as the US, China and New Zealand have also sought the release of Australia's 2030 projections, have questioned the impact on emissions reductions of the Carbon Pricing Mechanism repeal and asked whether Australia plans to introduce longer-term emissions reduction policies (Sydney Morning Herald 2016b).

Conclusion

Following the landmark Paris Agreement in December 2015, countries around the world have continued to show their commitment to climate action through early ratification of the agreement and action on renewable energy and coal closure.

Once again, Australia lags behind other countries in its commitment to action on climate change. We are yet to ratify the Paris Agreement even though many of our closest allies, neighbours and trading partners have already done so.

Australia's emissions continue to rise, and the federal government has yet to take action on key elements of its emissions reductions plan - energy productivity improvements and introducing vehicle emissions standards.

If Australia is to fairly contribute to staying below the 2°C target, a more rapid downward trend in emissions from all sectors of the economy is required, with much stronger action to reduce our emissions.

Acronyms and Abbreviations

°C	Degrees Celsius
EU	European Union
UK	United Kingdom
UNFCCC	United Nations Framework Convention on Climate Change
US	United States of America

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