



# CROW Newsletter

May, 2019

## **We have to fix this climate emergency in the next 12 (now 11 ½ ) years**

The world's leading climate scientists have warned there is only a dozen years for global warming to be kept to a maximum of 1.5C, beyond which even half a degree will significantly worsen the risks of drought, floods, extreme heat and poverty for hundreds of millions of people.

The authors of the landmark report by the UN Intergovernmental Panel on Climate Change (IPCC) released on Monday say urgent and unprecedented changes are needed to reach the target, which they say is affordable and feasible although it lies at the most ambitious end of the agreement pledge to keep temperatures between 1.5C and 2C.

The half-degree difference could also prevent corals from being completely eradicated and ease pressure on the Arctic, according to the 1.5C study, which was launched after approval at a final plenary of all 195 countries in Incheon in South Korea that saw delegates hugging one another, with some in tears.

See more [here](#) or the full report [here](#).

## **What's at stake – 1.5° rise against 2.0°C rise**

- By 2100, global sea level rise would be 10cm lower with global warming of 1.5C compared with 2C.
- Extreme heatwaves will be experienced by 14% of the world's population at least once every five years at 1.5C. But that figure rises to more than a third of the planet if temperatures rise to 2C
- Arctic sea ice would remain during most summers if warming is kept to 1.5C. But at 2C, ice free summers are 10 times more likely, leading to greater habitat losses for polar bears, whales, seals and sea birds.
- If warming is kept to 1.5C, coral reefs will still decline by 70-90% but if temperatures rise to 2C virtually all of the world's reefs would be lost

## **Don't like the word "emergency"? Try "climate crisis".**

Report on the state of the world's ecosystems finds that human activities and climate change have significantly altered habitats such as coral reefs

**Up to one million plant and animal species face extinction, many within decades, because of human activities, says the most comprehensive report yet on the state of global ecosystems.**

Without drastic action to conserve habitats, the rate of species extinction — already tens to hundreds of times higher than the average across the past ten million years — will only increase, says the analysis. The findings come from a United Nations-backed panel called the [Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services \(IPBES\)](#).

## **We have been helping to cause droughts for more than a century**

Humans have contributed to increased global risks of drought for more than a century, scientists say, in findings that also point to "severe" consequences ahead with climate change. The research by US-based scientists and published in *Nature* journal on Thursday comes as the latest Bureau of Meteorology data showed the first four months of 2019 were the hottest on record for Australia as drought tightened its grip on the country's south-east.

They found drought increased during the first half of the 20th century, eased in the quarter century to 1975 and worsened again. The pause in the trend coincided with increased aerosol pollution.

"Models project and observations show a re-emerging greenhouse gas signal towards the end of the 20th century, and this signal is likely to grow stronger in the next several decades," the paper concluded. "The human consequences of this, particularly drying over large parts of North America and Eurasia, are likely to be severe."

See more [here](#) and [here](#).

## **Our government's response to the loss of one million species (is a joke)**

PM says bill that mentions testing makeup on animals is 'action' on extinction crisis  
**Scott Morrison claims to have passed laws 'dealing with that very issue' raised by the UN environment report**

Scott Morrison has identified a bill that restricts testing makeup on animals as an example of his government "taking action" on [the extinction of a million plant and animal species](#) raised by a landmark UN report.

On Tuesday, the prime minister told reporters he had "been taking action" on matters raised by the report, saying: "We already introduced and passed legislation through the Senate actually dealing with that very issue in the last week of the parliament."

## **ACF ratings of the major parties' policies**

The Coalition has rated a miserable 4/100 on the Australian [Conservation](#) Foundation's climate change policy scorecard.

The [scorecard](#), released on Monday ahead of the 18 May election, finds that Labor rates better on 56% but is held back by "fairly weak" policies on stopping the burning of coal and an "unclear" position on the Adani Carmichael coalmine.

The Greens rated a near perfect 99%, with "very good" policies in all areas including ramping up renewables and protecting natural habitats including reefs, rivers and forests. The ratings are [based on a comparison across 50 policy measures](#).

The ACF chief executive, Kelly O'Shanassy, said stopping climate change and protecting nature "are top issues for Australians at this election, according to numerous opinion polls and the ABC's vote compass".

### **Coalition**

The ACF rated the Liberal-National [Coalition](#) "very poor" on renewable energy, noting it has made "piecemeal promises for pumped hydro storage" but has no plan to lift renewable energy above 23%.

The Coalition started 2019 by trying to bolster its climate change credentials with [a \\$2bn cash injection to the emissions reduction fund](#) but has resorted to scare campaigns against Labor's policy, labelling it a Trojan horse for a carbon tax and [falsely claiming the opposition would tax petrol cars](#).

The ACF labelled the renamed climate solutions fund "grossly inadequate" and said the Coalition "actually support burning more coal, making climate change even worse".

O'Shanassy said the emissions reduction fund "has not curbed Australia's climate pollution".

"For the Coalition to again offer this ineffective policy as its main plan to tackle climate change shows a disregard for farmers, survivors of natural disasters fuelled by global warming and the next generation of Australians."

### **Labor**

The ACF concluded Labor has "fairly good" policies on renewables, including a 50% renewable target, but the Greens were "very good" with a 100% renewables pledge and plan to reach net zero climate pollution by 2040.

The ACF also rated the Greens higher on stopping coal, noting the minor party has pledged to stop the Adani mine but Labor has "made no commitment as to what they will do about Adani's mine if elected".

Last week Bill Shorten was questioned repeatedly about [whether Labor will review Adani's approvals if it wins government](#). Shorten replied Labor has “no plans” to do so, but has not definitively ruled it out.

Labor has [promised to reduce greenhouse gas emissions by 45%](#) using the framework of Malcolm Turnbull's national energy guarantee and a revamped safeguards mechanism to limit pollution from heavy industry.

### **Greens**

The Greens have [promised stronger environmental regulators](#) and [demanded greater emissions reduction ambition from Labor](#), but been [rebuffed by Bill Shorten who has ruled out negotiating a new policy with the Greens](#).

The ACF concluded the Greens policies to protect nature were “very good” because it wants to end deforestation, create an independent science-based watchdog and significantly increase funding for habitat and species protection.

While Labor has promised a federal Environment Protection Agency, the ACF said its plan for new nature laws “lacks detail” and the party has not set aside sufficient funding for nature restoration or wildlife recovery.

## **Meanwhile on another planet**

New Zealand has an [emissions trading scheme](#) and from 1 July **2010**, the energy and liquid fossil fuel and some industry sectors had obligations to report emissions and to obtain and surrender emissions units (carbon credits).

And just last week:

New Zealand's long-awaited [zero carbon bill](#) will create sweeping changes to the management of emissions, setting a global benchmark with ambitious reduction targets for all major greenhouse gases.

The bill includes two separate targets – one for the long-lived greenhouse gases carbon dioxide and nitrous oxide, and another target specifically for biogenic methane, produced by livestock and landfill waste.

Launching the bill, Prime Minister Jacinda Ardern said:

*Carbon dioxide is the most important thing we need to tackle – that's why we've taken a net zero carbon approach. Agriculture is incredibly important to New Zealand, but it also needs to be part of the solution. That is why we have listened to the science and also heard the industry and created a specific target for biogenic methane.*

## **Australia's next big export - Hydrogen**

In March, the Queensland University of Technology [made history](#) when it achieved the first export of a small quantity of clean, green hydrogen produced in Australia from renewable energy, to Japanese energy giant JXTG – proving that it was in fact possible.

Hydrogen is increasingly being seen as an alternative to LNG and other fossil fuels and Australia has a lot to gain from a new export industry, with companies such as Woodside [Energy](#) and Siemens already investing.

Each year the world consumes 55 million tonnes of hydrogen, a figure which is expected to increase dramatically over the next decade. As countries such as Japan and South Korea embrace hydrogen to rapidly decarbonise their economies in response to climate change, global demand is expected to rise by eight million tonnes as of 2030 and about 35 million tonnes by 2040.

## **Australian miracle - turning CO2 into coal.**

Researchers have used liquid metals to turn carbon dioxide (CO<sub>2</sub>) back into solid coal with technology they say has the potential to revolutionise carbon capture and storage and provide a new way for removing greenhouse gases from the atmosphere.

The international team led by RMIT University in Australia developed a liquid-metal electrocatalyst that transforms gaseous carbon dioxide directly into carbon-containing solids at room temperature.

The catalyst, which is based on non-toxic [gallium](#) alloys, also prevents coking – where solid carbon sticks to the catalyst surface – which has been a problem in previous work in this area. The key to all of this is the “room temperature” bit. Other methods to prepare carbon nanomaterials usually require working at temperatures of hundreds of degrees Celsius, making them energy-intensive and not commercially viable.

Similarly, the researchers say, technologies that focus on compressing CO<sub>2</sub> into a liquid form and then injecting it underground have both economic and environmental drawbacks, notably possible leaks from storage sites.

And reducing CO<sub>2</sub> to high-value products such as chemical feedstocks and fuel does not permanently trap the carbon. The fuels, for instance, are burned, releasing it all over again.

## [‘Climate Cuts, Cover-Ups and Censorship’](#) – report from the Climate Council

The Climate Council’s report, [‘Climate Cuts, Cover-Ups and Censorship’](#) provides a detailed overview of the Australian government’s approach to climate change since the election of the Liberal-National Coalition government in 2013. The period is characterised by slashing climate science funding, cutting effective climate change programs, rejecting the expert advice of national and international bodies, senior ministers making publicly misleading claims, a lack of credible climate policy, and consistently covering up poor performance.

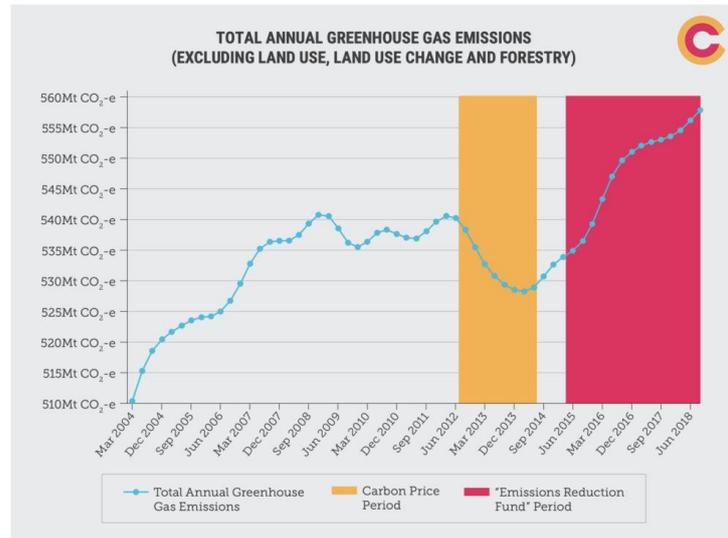


Figure 8: Total annual greenhouse gas emissions (excluding Land Use, Land Use Change and Forestry). Source: Data from Australian Government 2018a.

## [Not just cars – planes, trucks and trains go electric](#)

### **MagniX electric plane engines**

An aviation tech company founded on the Gold Coast has set out to transform commercial passenger planes by developing an electric propulsion system.

Led by a former Boeing executive, MagniX believes they are on the way to replacing the turbo propeller engines found on the small, workhorse planes that service remote areas around the world.

### **Hydrogen trains**

In September, two hydrogen fuel cell powered trains took their first passengers on a 100km route in northern Germany normally serviced by diesel powered engines.

Releasing only steam and water condensation, the award-winning hydrogen powered trains perform similarly to their diesel rivals, comfortably cruising at 140km/h with 1000km range and accommodation for 300 passengers.

### **Electric truck conversions**

Closer to home, Melbourne-based SEA Electric is going from strength to strength, converting trucks and vans to run on its proprietary electric driveline.

With a range spanning everything from a delivery van all the way up to a IVECO ECCO cab chassis which can be fitted out for garbage collection or transporting goods, the vehicles can be tailored for a wide range of applications.

### **China's electric bus revolution**

As cities across China embrace renewable energy, Shenzhen has become the first to transition its bus fleet to entirely electric power.

The city of 12.5 million people embraced zero emissions vehicles in 2009 to tackle unhealthy levels of air pollution. Within two years, the first all-electric buses began rolling off the production line at Chinese manufacturer BYD, and today the city boasts a fleet of more than 16,359 electric buses.

According to BYD estimates, its fleet has travelled in excess of 17 billion kilometres and saved 6.8 billion litres of fuel. That has avoided 18 million tons of carbon dioxide being emitted – the equivalent to the amount released by about 3.8 millions cars in one year

### **We could be 100% RE by 2032 with or without the politicians**

Australia is installing more renewable power per person than any other country, meaning that the country is on track to meet its Paris Agreement emissions reduction targets a full five years early.

According to new research from the Australian National University (ANU), Australia is installing more renewable power per capita several times faster than the European Union, Japan, China and the United States.

"The installation of renewables in Australia last year really ramped up compared to these other major economies, and we expect that trend to continue this year and beyond," said Professor Blakers from the ANU Research School of Electrical, Energy and Materials Engineering (RSEEME).

"The electricity sector is on track to deliver Australia's entire Paris emissions reduction targets five years early, in 2025 - without the need for any creative accounting.

"Australia is on track to reach 50 per cent renewable electricity in 2024 and 100 per cent by 2032. The Australian renewable energy experience offers real hope for rapid global emissions reductions to preserve a living planet."

According to the research, the net economic cost of reaching the 2030 carbon emission targets set by the Paris Agreement would be zero, as sustainable and renewable energy production means are now cheaper per unit than carbon power generation.

"We can do this with energy storage, demand management and strong interstate connection using high-voltage transmission lines to smooth out the effect of local weather," co-researcher Bin Lu said.

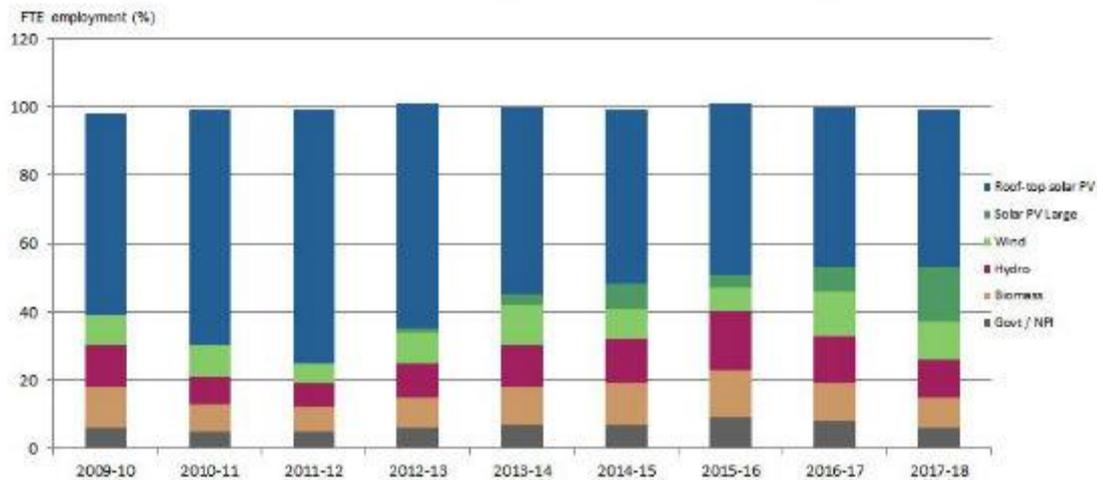
### **[If politicians want jobs, renewables can deliver](#)**

**Renewable jobs** are growing across Australia with jobs in the solar sector growing fastest. Yesterday's figures from the Australian Bureau of Statistics (ABS) show the highest level of estimated full-time equivalent (FTE) employment in renewable energy since 2011-12. The [Employment in Renewable Energy Activities, Australia, 2017-18](#) report shows the staggering advance of solar energy. Construction activity in large-scale solar panel systems and rooftop solar PV now makes up 94 per cent of the increase in clean energy industry employment.

#### **Renewable jobs show steady growth in flourishing sector**

Annual direct FTE employment in Australia's renewable sector is estimated at 17,740 jobs in 2017-18. This is an increase of 3,890 FTE jobs (28%) from the previous year (2016-17) and the highest level since 2011-21.

Figure 3 - Proportion of annual direct FTE employment by type of renewable energy (a), 2009-10 to 2017-18



Footnote(s): (a) Excludes Geothermal Energy from total; (b) includes Solar Hot Water Systems.

Source(s): Employment in Renewable Energy Activities, Australia 2017-18

Renewable energy employment is on the rise – and solar energy takes the lion’s share. Image: ABS

The latest increase has been driven by the continuing solar boom, ABS figures show.

A surge in construction of large-scale [solar power](#) systems and farms saw an extra 1,950 FET jobs created between 2017 and 2018. Booming rooftop solar brought in an extra 1,720 FTE jobs. In fact, rooftop solar has been the single biggest contributor to growth in every year of published ABS figures.

## And finally, in local news

### MURRAY BASIN

The Murray Basin cluster comprises NRM regions across New South Wales, Victoria and South Australia. The cluster extends from the flatlands of inland New South Wales to the Great Dividing Range along the southern and eastern boundaries and includes Australia’s highest mountain; Mt Kosciusko, at 2228m.

The cluster is relatively dry and temperate, with a warm and dry grassland climate in the north-west ranging to temperate with hot summers further east.

### KEY MESSAGES

- Average temperatures will continue to increase in all seasons (*very high confidence*).
- More hot days and warm spells are projected with *very high confidence*. Fewer frosts are projected with *high confidence*.
- By late in the century, less rainfall is projected during the cool season, with *high confidence*. There is *medium confidence* that rainfall will remain unchanged in the warm season.
- Even though mean annual rainfall is projected to decline, heavy rainfall intensity is projected to increase, with *high confidence*.
- A harsher fire-weather climate in the future (*high confidence*).

You can get further details at:

From <https://www.climatechangeinaustralia.gov.au/en/climate-projections/future-climate/regional-climate-change-explorer/clusters/?current=MBC&popup=true&tooltip=true>>