



# As the crow flies

(Straight to the point)

November, 2020

## NEWS

### News from CROW - Progress on the Abbeyfield House project

On Oct 29th 5.28kW of solar pv was installed on each of the six units of Abbeyfield Koorungal (total 31.68kW). CROW played a significant role in finding finance, considering the quotes and coordinating with the funding bodies. The majority of the funding was a \$34,000 no-interest loan from CORENA, which supports non-for-profits to reap the benefits of rooftop solar. Planet Power provided a discount of nearly \$7,000 on the installation in recognition of the project's charitable nature.



Photo of some of the installations at right.  
Thanks again to those who contributed to this project!.

### Local news – Wagga Council Local Strategic Statement

Wagga Council is currently opening this critically important planning statement for public contributions.

#### Local Strategic Planning Statement (LSPS)

The Local Strategic Planning Statement (LSPS) is Council's plan to set the direction for Wagga Wagga's growth to 2040. The 20-year plan envisages Wagga Wagga being the southern capital of New South Wales and a city that is globally connected, culturally rich and vibrant, and economically diverse with high levels of liveability.

The key outcomes is to find the balance between growth, the natural environment, sustainability and liveability.

**If you would like to be involved in public information sessions you need to register in a hurry.** Details can be found [HERE](#). The current draft of the LSPS is available [HERE](#) (Large pdf file)

CROW will be adding a submission. Suggestions from members are welcome. We will send out a separate email about this after Thursday nights meeting.

### National news – Australia will be a renewable power house despite its lazy government

Despite efforts by the Federal Government to prop up its fossil fuel donors with the bound-to-fail "gas led recovery", low 2030 target and missing 2050 target for carbon abatement, a burst of initiatives announced recently will ensure that smart investment and active state governments will take Australia to international status as a clean energy and technology producer and exporter.

In Friday's SMH (13 November), David Ritter from Greenpeace points out that Morrison and Taylor are increasingly isolated. All our major trading partners from China to the EU (and now including the USA) have active programs to get out of carbon. All the Australian states and territories have committed to carbon neutral energy supply before 2050 – some much earlier.

And now big business, including Woolworths, Aldi, Telstra, Ikea, superannuation schemes and even Twiggy Forrest's Fortescue Metals are on the bandwagon, both because it makes business sense (call it "green greed") and because their customers and investors are demanding it.

So too much news to fit in this newsletter.

But for an excellent article summarising what is happening got [to Green giants: the massive projects that could make Australia a clean energy superpower](#) from the Guardian.

## TECHNOLOGY (Hydrogen special)

### Hydrogen based transport

While battery powered electric cars are certainly establishing a foothold in Asia and Europe, the usefulness of this technology for large trucks, planes and shipping has always been suspect because of range or weight limitations and slow recharging times.

This is especially so for long distance trucking in rural Australia.

This month there has been a tremendous number of articles, discoveries and technical breakthroughs reported that may well be the basis for the solution to these issues – hydrogen powered vehicles.

So, what follows is an incomplete summary of some of the news. As always you can click through to any articles that may interest you.

### [Hydrogen powered trucks are heading our way](#)

The Wall Street Journal recent article<sup>1</sup>, "*Hydrogen-Fuel Focus Shifts to Big Rigs*" noted that the major car/truck makers are now focused on Hydrogen-fuel based trucks, which have major advantages over current diesel trucks (operating costs and emissions) and potential battery electric trucks (faster refueling time and larger payload space). Toyota, General Motors, Daimler, Volvo and Hyundai all have announced plans for long haul, big rig hydrogen trucks<sup>1</sup>. "It's clear that hydrogen fuel-cell trucks are needed," said Andrew Lund, Toyota's chief engineer for the technology quoted to the Wall Street Journal article. "They provide technical solutions that other technologies cannot meet in the long run." The Wall Street Journal article also highlighted that "There are major hurdles, including the availability of hydrogen stations".

### [West Australia's Hydrogen Highway](#)

The main initiative of the Hydrogen Society of Australia is the Hydrogen Highway. The Hydrogen Highway describes roads equipped with hydrogen refilling stations, allowing the use of hydrogen fuel cell vehicles. WA's Hydrogen Highway will focus on heavy transport, helping to introduce zero emission transport, lower cost of fuel, and eventually, a secure fuel supply, eliminating the need for importing diesel. Phase 1 will run along Highway 95 from Perth to Port Hedland, linking the state capital with the Pilbara region. The subsequent stages will lead to an expansion of the Hydrogen Highway across the State then Australia along Highway 1, the world's longest country highway.

### [Hydrogen generation finding its home in South Australia](#)

South Australia starts to realise its goal of developing a world-leading export industry with plans for a \$240m project at Port Bonython.

Port Bonython has been earmarked as one of [three export and production hubs for hydrogen in the state](#).

The Port Bonython hydrogen project will be the world's largest green ammonia plant, with a capacity 60 times larger than [Australia's current largest hydrogen plant at Tonsley in Adelaide](#). The demonstrator phase of the project is of global significance, but it is just the precursor to a much larger production and export facility.

A planned upgrade of Port Bonython's existing jetty for \$37m is needed to accommodate the new hydrogen-based plant and is funded by the South Australian government.

[In addition it has also been announced](#) that the new facility is set to supply one of Australia's major steelmaking hubs, with a deal struck that will see green hydrogen produced in Adelaide trucked to the 'steel city' of Whyalla.

### Major breakthrough – using microwaves to produce cheap hydrogen

A team of researchers from the Polytechnic University of Valencia and the Spanish National Research Council (CSIC) has discovered a new method that makes it possible to transform electricity into hydrogen or chemical products solely using microwaves—without cables and without any type of contact with electrodes.

This represents a revolution in the field of energy research and a key development for the process of industrial decarbonisation, as well as for the future of the automotive sector and the chemical industry, among many others.

### Compressed air energy storage gets going in UK

A team in the United Kingdom has started work on the world's first facility to store energy as highly compressed air.

The 50 megawatt plant will take excess power from wind farms and use it to store ordinary air at pressures so great that it will become a liquid. Then, during periods of peak demand, they'll warm the stored air up and use it to power a turbine that pumps electricity back into the grid.

The system is between 60 and 70 percent efficient. That's worse than a battery, but he predicted they'll be able to easily scale the system by adding more tank volume.

"Batteries are really great for short-term storage," says the project manager, "But they are too expensive to do long-term energy storage. That's where liquid air comes in."

## **POLITICS AND POLICY**

### The fossil fuel abyss on the river we are being sold down (to mix a metaphor or two)

Analysis from Michael West:

Australia is hurtling towards the fossil fuels abyss with nothing in the way of a policy to save thousands of communities across the land from destitution. There is no transition plan for the nation's future. Nothing.

Nothing, despite the compelling facts. The urgency of plummeting demand for our major exports cannot be understated, says IEEFA energy analyst Bruce Robertson.

"It doesn't matter what you think about climate change, what you think about emissions, All that matters is what our major customers think. The politicians are selling Australia's coal communities down the river".

### Climate Action Tracker report – cut gas and coal for best economic results.

New analysis published by the Climate Action Tracker initiative has detailed how Australia could take action on climate change consistent with limiting warming to 1.5 degrees, in a way that would leave it economically stronger, and with gas not needed as a transition fuel.

In a new report titled [Scaling up Climate Action](#), CAT found that Australia would be economically better off if governments adopted an ambitious switch to zero emissions energy sources, including an almost complete transition of the electricity system to renewable energy sources by 2030.

The report found that as many as 76,000 new jobs could be created over the next ten years within the renewable energy sector alone, through more ambitious emissions reduction policies.

CEO and senior scientist at Climate Analytics Bill Hare said. "We show how this is feasible. But it needs real climate policy across all sectors of the economy. **An important first step to achieving this is a planned and managed phase out of coal from power generation by 2030.**"

## The DNA of renewable energy is a circular economy

The latest, newest attacks against clean energy, namely “Oh my God, what are we going to do with all those solar panels and wind turbines and batteries at the end of their lives” and “Oh my God, what about the mining practices employed to get the materials necessary for clean energy” are, in one word, bollocks.

Solar panels recycling reaches 96% efficiency

90% of mass of wind turbines can be recycled; challenge with blades being solved

95% of lithium-ion battery can be reused

(Note that the link in the heading leads to Episode 42 of “The Angry Clean Energy Guy”, Assad Razzouk, which is an excellent explanation of the brief summary given here. Any of the episodes are worth listening to for clear, fact based information about renewable energy.)

## SCIENCE

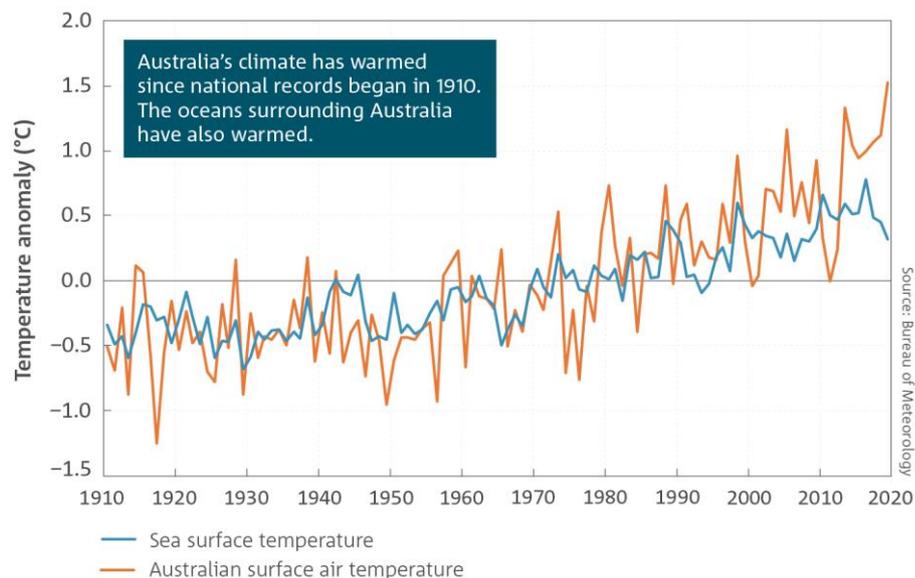
### The 2020 State of the Climate Report

As noted above The CSIRO and Bureau of Meteorology have released their 2020 State of the Climate report, which summarises the current state of climate change as it relates to Australia.

The ABC news report of the release can be reached by clicking on the heading above. The full report can be accessed [here](#).

The Key Points of the 2020 report are:

- Australia’s climate has warmed on average by  $1.44 \pm 0.24$  °C since national records began in 1910, leading to an increase in the frequency of extreme heat events.
- There has been a decline of around 16 per cent in April to October rainfall in the southwest of Australia since 1970. Across the same region May–July rainfall has seen the largest decrease, by around 20 per cent since 1970.
- In the southeast of Australia there has been a decline of around 12 per cent in April to October rainfall since the late 1990s.
- There has been a decrease in streamflow at the majority of streamflow gauges across southern Australia since 1975.



- Rainfall and streamflow have increased across parts of northern Australia since the 1970s.
- There has been an increase in extreme fire weather, and in the length of the fire season, across large parts of the country since the 1950s, especially in southern Australia.  
There has been a decrease in the number of tropical cyclones observed in the Australian region since 1982.
- Oceans around Australia are acidifying and have warmed by around 1 °C since 1910, contributing to longer and more frequent marine heatwaves.
- Sea levels are rising around Australia, including more frequent extremes, that are increasing the risk of inundation and damage to coastal infrastructure and communities

## Half of the GBR has died in 25 years

Half of the corals along the Great Barrier Reef have died over the past 25 years, prompting fresh warnings from scientists alarmed climate change is irreversibly destroying the underwater ecosystem.

The study, published in the [Proceedings of the Royal Society Journal](#) on Wednesday, found an alarming rate of decline in all sizes of corals since the mid-1990s across the vast World Heritage-listed reef off the Queensland coast.

Larger species, such as branching and table-shaped corals, have been affected hardest, almost disappearing from the far northern reaches of the reef, which experienced extreme heat stress during 2016 and 2017.

Against this backdrop, and punitive laws requiring Queensland farmers to improve the quality of water runoff from sugar cane, banana cropping and cattle grazing, a new scheme of “Reef credits” is being introduced. This will work like a tradeable carbon credit but be based on improvements in water run-off quality. More information [here](#) IH/t Grant Adams).

## Soil carbon cold be a problem as temperatures rise

2 °C of Warming Could Open The Floodgates For 230 Billion Tons of Carbon to Escape  
Most of us know about the vast stores of carbon in our atmosphere, and yet beneath our feet, Earth's soil contains [nearly three times](#) as much CO<sub>2</sub>, absorbing roughly a quarter of all human emissions each year.

If the world warms by 2 °C or more, we risk turning that vital sink into a carbon spout.

An updated model on carbon soil turnover has found such warming could release 230 billion tons of carbon dioxide, give or take 50 billion tons. And that's just from the top metre of soil, which includes [roughly the same amount of carbon as our atmosphere](#).

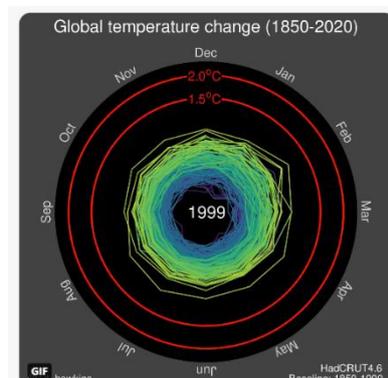
That number is a [little under what China has emitted since 1900](#) and [slightly less than double what the United States has emitted](#) since the same year.

## Global temperatures – 1850 to 2020

(Hopefully) if you click on the address below you should see an animated display of the way the global temperatures have changed since 1850.

Spoiler alert – they have been increasing.

<https://twitter.com/i/status/1265632085852786688>



## Hurricanes are taking a deeper bite out of the land

North Atlantic hurricanes are retaining far more of their strength when they hit land because of global warming, say scientists.

Previously, experts believed these storms died down quickly once they made landfall.

But over the past 50 years, the time it takes for hurricanes to dissipate on the coast has almost doubled.

Researchers say that climate change gives the storms more energy, which continues to power them over land.

The scientists involved say that this will likely make hurricanes more damaging further inland in years to come.

## **MONEY**

### China, Japan, Korea, Phillipines, Myanmar, Vietnam are all kissing coal goodbye

The writing is on the wall for coal, and increasingly oil and gas. Financial markets got that message loud and clear when [China](#) pledged net zero emissions before 2060, and then [Japan](#) and [South Korea](#) committed to doing the same by 2050.

Fossil-fuel exporters hoping that imported coal would dominate in Asian markets long after other parts of the world switched to cheaper domestic renewables may be sorely disappointed given the recent turn of events. This past month alone has seen a wave of declarations from Asian countries, financial institutions and companies signaling moves away from coal.

In the wake of China's, Japan's and South Korea's net-zero emissions pledges, the Philippines announced a [moratorium on new coal-fired power plants](#), while Thailand's new [power development plan](#) revealed a pivot away from coal, targeting just a 5% capacity share by 2030. Meanwhile, the success of [Myanmar's 1.06-gigawatt solar tender](#) could put that country on the same path as Vietnam in an accelerated pivot from imported to lower-cost domestic renewables.

### Act on climate now or lose three trillion dollars

The Australian economy will **lose more than \$3 trillion over the next 50 years if climate change is not addressed**, according to a new report from Deloitte Access Economics.

The report found the economy could shrink by 6 per cent over the next 50 years and 880,000 jobs could be lost.

If we do act over the next few years then in just 50 years there is a benefit to the economy of \$680 billion," he said.

We'll have an economy 2.6 per cent bigger, generating 250,000 jobs, so we need to act on climate change now.

Queensland, the Northern Territory and Western Australia will feel the effects most acutely, with trade, tourism and mining some of the industries most exposed to the effects of climate change.

Queensland in 50 years will represent half the country's job losses if we don't get this right, but will gain 70 per cent of the jobs if we do get this right."

OR, to summarise:

If Australia acts on Climate:

+26% bigger economy +\$680b benefits + 260,000 new jobs

If Australia continues not to act on climate: - Economy shrinks 6% - Country loses A\$3 trillion - 900,000 jobs lost

### Tomago Aluminium backs NSW Government's switch to renewables

The most energy-intensive manufacturer in Australia says [NSW's renewables plan](#) is desperately needed to deliver cleaner, cheaper and more reliable electricity.

Tomago Aluminium, which consumes 10 per cent of NSW's power, has been warning the state government that rising energy prices could have a significant impact on its NSW operations.

Chief executive of Tomago Matt Howell said price and reliability were crucial for the aluminium smelter, which is the largest energy user in the country.

"Anything that delivers cleaner, cheaper and more reliable energy is something that we would be keen to explore," Mr Howell said.