



CROW Newsletter

(Keeping our eye on the climate news))

January, 2021

2021 – here's hoping.

So I guess that we can all agree that 2020 had some problems. Worldwide bushfires, floods hurricanes, massive warming of the Arctic and Antarctic, Donald Trump. It was a La Niña year, which normally means cooler temperatures and still it was the equally hottest year (with 2016 worldwide and the fourth hottest year in Australia.

So who is prepared to bet that vaccines will save the hundreds of thousands who will die from coronavirus without it, that carbon dioxide emissions will go down, that renewable energy will continue to forge ahead, that we will avoid the tipping points that we are teetering on, that governments, especially ours, will come to their collective senses and recognise that we need to be on a war footing to avoid a crisis that will make coronavirus look like just a practice run?

Whatever, the CROW Newsletter will continue to keep our eye on the politics, science and technology of climate change.

So whether you feel confident that 2021 must be better or you have your fingers firmly crossed that it won't be worse, at least your little monthly package of news will help keep you informed.

POLITICS AND POLICIES

[National ESB report sets out planning needs post 2025](#)

In a major update to Australia's electricity planning frameworks, the Energy Security Board (ESB) has released its Post-2025 Directions [paper](#), designed to pre-empt the impending closure of sixteen gigawatts of thermal power stations in Australia's National Electricity Market (NEM).

The report "finds that emissions across the NEM at present are approximately 25 per cent lower than in 2005. By 2030, those emissions will be between 40 and 60 per cent lower than 2005. And between 70 and 95 per cent lower by 2042".

The dual challenges of upgrading grid networks to accommodate zero emissions technologies and dealing with increasing rates of failure in old fossil fuel power stations are key focus areas for Australia's regulatory and planning bodies.

[Big plans for renewables](#)

The last two months have been a defining point on actions for the Paris Agreement. Following on from China, both Japan and South Korea have pledged net zero emissions by 2050 targets. And President-elect Joe Biden has promised to make climate change a top priority for the U.S. again. The implications are clear, with BlackRock's chair Larry Fink describing the "tsunami of change in asset reallocation right now" due to climate risk.

Andrew Forrest's Fortescue Future Industries has talked of a 235 gigawatt (GW) opportunity to its shareholders this month, a rather ambitious investment plan that would cost in the order of \$235bn.

Then there is the more measured 26GW, \$38bn renewables and green ammonia Asian Renewable Energy Hub in the Pilbara, awarded 'major project status' last month by our

Federal Government. The 10GW Sun Cable solar farm and subsea cable project linking up Darwin to Singapore is costed at \$20bn.

The NSW Electricity Infrastructure Roadmap sees a \$32bn regional investment plan by 2030. And the NSW Electricity Infrastructure Roadmap unveiled in November, and passed by both NSW Houses of Parliament this week with bi-partisan support sees a \$32bn regional investment plan by 2030. So when we talk of a \$200bn investment opportunity, this could prove to be a very conservative estimate.

[Beetaloo Basin – public money going nowhere - IEEFA](#)

The Federal government's \$50 million handout to the Northern Territory's failing gas industry to fast-track exploration in the Beetaloo Basin is a waste of taxpayer money that will bring zero return.

Gas companies have been cutting production and sacking workers. Stimulating economic growth equates to more private investment, more drilling, more jobs. Gas companies are doing the reverse.

The Office Of Groundwater Impact Assessment says that in just one CSG basin, the Surat basin, 122 bores have run dry as a result of CSG activities. They're predicting 571 bores will run dry over the life of the Basin, higher than the previous estimation. And remember, we are in the early days of this industry. It has only been operating at scale since 2014. The impacts are yet to be felt.

Click on the heading for a full report.

Fun fact: *"The emissions from just one field in the Beetaloo Basin would cause up to 117 million tonnes of CO2 equivalent, and to put that in context, that's larger than all offset credits ever issued by the Australian Government"* ([How the Beetaloo gas field could jeopardise Australia's emissions target](#))

[Transition from coal mining is not a big problem for workers](#)

The Australia Institute's Centre for Future Work (CFW) has found Australia could phase out coal, oil and gas industries without mass layoffs.

Around 133,000 people were employed in fossil-fuel jobs in 2019 - around 1 per cent of Australia's total jobs. Approximately 50,000 of those jobs are in the coal industry. But CFW director Dr Jim Stanford said their analysis showed the government could manage the transition by investing in incentives for early retirement and regional diversification over a 20-year period.

It would be "shockingly inexpensive" for Australia to support the small number of communities that relied on these jobs. "You've got a situation where you have to facilitate the replacement of 1 per cent of total employment. So you're adjusting it by one-20th of 1 per cent a year. You're looking at 6,500 jobs per year.

"And because you're dealing with a 20-year period, and you're dealing with a workforce that is already relatively old if you do it right most of those workers can just retire. Or they can undertake other voluntary changes. [It] absolutely can be done without a single involuntary redundancy."

The centre identified only 11 areas across Australia where fossil fuel industries combined accounted for over 5 per cent of total employment. Around one-quarter of fossil fuel jobs are located in these towns, which include Biloela, Rockhampton, Lithgow, the Lower and Upper Hunter, Maitland and the West Pilbara.

From: [The Canberra Times](#).

And in the SMH 11/01/2021 a four page spread on [What's a 'just transition' and can you switch to green energy without sacking coal workers?](#) Which includes this:

Almost everywhere industries have collapsed, workers have been left in the lurch, from manufacturing and coal today to the cotton mills of the previous century. But when Germany shuttered its black coal industry in 2018, it did it without sacking a single worker, under a model known as "just transition".

More (dodgy) Federal subsidies for fossil fuels

Delta Electricity, the owner of the Vales Point coal-fired power station, was asked to apply for an \$8.7 million government grant for plant upgrades weeks after the funds were announced in the federal budget, documents obtained under freedom of information laws have detailed.

The Morrison government has sought to provide funding to cover the cost of some repairs at the ageing coal-fired power station under the UNGI scheme. Delta Electricity secured the \$8.7 million in funds despite the power station [generating more than \\$60 million in profits in the last financial year](#).

And more: The Australian Government will provide up to \$200 million in competitive grants to support the construction of an additional 780 megalitres of diesel storage in Australia", wrote the Department of Industry, Science, Energy and Resources (DISER) in a recent [release](#) published on the Friday of the first week in January, within Australia's holiday period.

And yet more: Australia will bring forward by six months a payment to support the country's three remaining oil refineries to help tide over the financial hit from the coronavirus pandemic, Energy Minister Angus Taylor said on Monday. The support, announced as part of a A\$2.3 billion comprehensive fuel security package in September, will now begin on Jan. 1, 2021 versus July 1.

TECHNOLOGY

Austria starts making iron without CO₂ this year.

TOKYO -- Japan's Mitsubishi Heavy Industries will soon complete in Austria the world's largest steel plant capable of attaining net-zero carbon dioxide emissions.

Mitsubishi Heavy, through a British unit, is constructing the pilot plant at a complex of Austrian steelmaker Voestalpine. Trial operation is slated to begin in 2021.

The plant will use hydrogen instead of coal in the reduction process for iron ore. The next-generation equipment will produce 250,000 tons of steel product a year.

The global steel industry generated about 2 billion tons of CO₂ in 2018, according to the International Energy Agency -- double the volume in 2000. The steel sector's share among all industries grew 5 percentage points to 25%.

And in Australia, Fortescue Metals Group (FMG) and South Korean steelmaker Posco have agreed to a partnership that will see FMG supply Posco with iron ore and green hydrogen.

Big batteries pushing out old coal power stations

(H/T Grant Adams)

Two new large-scale batteries that would be Australia's biggest battery storage projects are proposed in [New South Wales](#) in a bid energy analysts say will accelerate the state's energy transition.

Origin [Energy](#) is moving forward with its plans for a 700MW battery at its Lake Macquarie Eraring power station, which the company said would be the largest battery project currently under consideration in Australia.

French energy giant Neoen also submitted a [scoping report](#) to the NSW government before Christmas for a 500MW storage project near the site of the former Wallerawang power station near Lithgow.

Origin said if it proceeds with the project its battery would have a dispatch duration of four hours and would be developed in three phases, with the first phase expected to be reached in late 2022.

[The belching cattle led recovery](#)

The CSIRO and Woolworths are among investors in a new company that will commercialise the use of seaweed to reduce methane emissions from belching cattle.

The seaweed *Asparagopsis* has been shown to reduce methane emissions in beef and dairy cattle by more than 80 per cent in research trials in Australia and the USA, the CSIRO says.

CSIRO scientists estimate that if the feed additive were to be adopted by 10 per cent of beef feedlots and dairy industries globally, livestock greenhouse gas emissions could be cut by about 120 megatonnes annually.

That is equivalent to taking around 50 million cars off the road for a year.

SCIENCE

On the record – how hot was 2020?

[2020 was joint warmest year ever recorded](#) - California's Death Valley recorded the planet's highest-ever reliably recorded temperature in 2020. Last year tied with 2016 as the world's warmest on record, rounding off the **hottest** decade globally as the impacts of climate change intensified

[And Australia had its fourth warmest year](#) - It was the fourth-warmest year on record and wetter than average as the hot and dry start was countered by a La Niña weather pattern declared in September, the Bureau of Meteorology's annual climate statement says. Temperatures were 1.15 degrees above average and followed Australia's hottest and driest year on record in 2019.

And: **8 of 10 warmest years on record are in last 20 years** - The warmest years globally have all occurred since 1998, with the top ten being 2020, 2016, 2019, 2015, 2017, 2018, 2014, 2010, 2013 and 2005 (tied), respectively.

And: [CO2 concentrations at historic highs](#) - In fact, the last time the atmospheric CO₂ amounts were this high was more than 3 million years ago, when temperature was 2°–3°C (3.6°–5.4°F) higher than during the pre-industrial era, and sea level was 15–25 meters (50–80 feet) higher than today.

And: [There hasn't been a record cold year since 1904](#) - The globe's 21st-century heating, however, becomes all the more stark when compared to the coldest years on record. The planet's 20 coldest years all occurred nearly a century ago, between 1884 and 1929. The coldest year on record occurred in 1904.

[This is our world in 2050 if we don't act on carbon pollution](#)

It is 2050. Beyond the emissions reductions registered in 2015, no further efforts were made to control emissions. We are heading for a world that will be more than 3 degrees warmer by 2100.

The first thing that hits you is the air. In many places around the world, the air is hot, heavy, and depending on the day, clogged with particulate pollution. Your eyes often water. Your cough never seems to disappear.

When storms and heat waves overlap and cluster, the [air pollution](#) and [intensified surface ozone levels](#) can make it dangerous to go outside without a specially designed face mask (which only some can afford).

Our world is getting hotter, an irreversible development now utterly beyond our control. We have already passed tipping points, like The Great Melting of the [Arctic sea ice](#), which used to reflect the sun's heat. [Oceans, forests, plants, trees, and soil](#) had for many years absorbed half the carbon dioxide we spewed out. Now there are few forests left, most of them either logged or consumed by wildfire, and the permafrost is belching greenhouse gases into an already overburdened atmosphere.

Follow the link in the heading for more depressing reading.

Or check out this slightly more cheerful article from the Guardian:

[Global heating could stabilize if net zero emissions achieved, scientists say](#)

MONEY

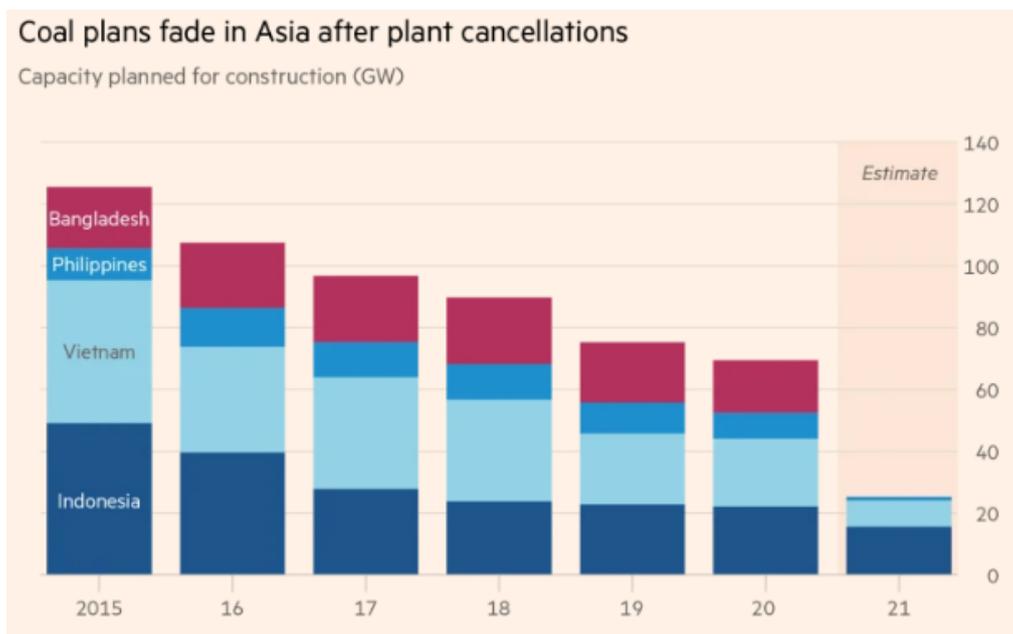
Will we continue to export coal to Asia? Maybe.

(From the [Financial Times](#) – paywall protected)

85% of planned coal projects in Asia have been cancelled –

Vietnam, Indonesia, the Philippines and Bangladesh: 125GW planned 5 years ago, vs. 25 gigawatts in pre-construction planning stages now

India: 238GW 5 years ago vs. 30GW now



[Lithium ion battery prices are falling](#)

Battery costs are falling even faster than those of solar and wind. Coal costs are rising and can't compete

\$137/kWh is the average lithium-ion battery pack price in 2020 according to @BloombergNEF's 2020 Battery Price Survey. This is a fall of 13% in real terms since 2019.

Battery pack prices fell 89% between 2010 and 2020. This price covers the cell, module and pack.