

chain reaction

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The National Magazine of Friends of the Earth Australia

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Fighting to protect our forests

A just response to climate change displacement

Stunning fall in renewable power costs

Who's winning the SA power play?

My coal childhood – lessons for Australia

Fight to protect Toolangi forest

Nano foods

Indigenous and grassroots solidarity gathering

Nobel Peace Prize born in Australia



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1

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2

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 Melbourne Perth South West WA Sydney

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the Earth**

Friends of the Earth (FoE) Australia is a federation of independent local groups.

You can join FoE by contacting your local group – see the inside back cover of Chain Reaction for contact details or visit foe.org.au/local-groups

There is a monthly FoE Australia email newsletter – subscribe via the website: www.foe.org.au

To financially support our work, please visit foe.org.au/donate

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flickr.com/photos/foeaustralia

Stop Adani: Thousands turn out for a day of national action

Thousands rallied in Sydney, Brisbane, Melbourne, the Gold Coast, Port Douglas and elsewhere on October 7 to oppose Adani's proposed Carmichael coal mine. In a grand demonstration of community opposition, over 16,000 nationwide turned out to create human signs displaying the simple message: Stop Adani.

The Wangan and Jagalingou people – Traditional Owners of the area also known as the Galilee Basin – are gravely concerned about the planned mine. They say that it would have devastating impacts on native title, ancestral lands and waters, on plants and animals and, on cultural heritage.

The planned mine is often described as a 'carbon bomb', and if it went ahead it would cancel out any good achieved from Australia's already weak goals for reducing greenhouse gas emissions between 2020 and 2030.

Friends of the Earth are proud members of the Stop Adani Alliance. www.stopadanialliance.com, #StopAdani

FoE welcomes Strzelecki Reserve Announcement

Friends of the Earth (FoE) welcomed Victorian Minister Lily D'Ambrosio's announcement in October that 1,200 hectares of land – including the nationally significant College Creek, on the northern slopes of the Strzelecki Ranges – has been handed back to the State. This is the first of 8,000 ha that will return to the state by 2028, under the Strzelecki Cores and Links Reserve. The land was under the control of Hancock Victorian Plantations.

Over the next 10 years, another 7,000 hectares of land will follow the same process and FoE expects all of this land to be reserved by 2028. The 8,000 hectare reserve will eventually protect the key rainforest communities of the Strzeleckis and associated flora and fauna.

FoE understands that initially the land will be protected as a Special Protection Zone. Forest Reserve Status will be granted in the near future after a sign off by the Governor in Council. We expect this to occur in the next couple of months.

FoE spokesperson Anthony Amis said "this has been a 20-year campaign to protect College Creek and its unique rainforest attributes. Full credit must go to Friends of Gippsland Bush who initiated this campaign back in 1996."

Much of the work to get this deal through was done between 2004–08. It has been a very complicated process, something not undertaken by the state government before. Unfortunately, logging has occurred within College Creek, an outcome which was never supported by FoE or Friends of Gippsland Bush.

More information on College Creek: <http://bancockwatch.nfsbost.com/docs/college.btm>

FoE wins Victorian Premier's Sustainability Award

FoE Melbourne has won the Environmental Justice category in this year's Victorian Premier's Sustainability Awards for conducting a campaign to build community resistance to the threat of hydraulic fracturing extraction of unconventional gas, known as fracking.

FoE Melbourne initiated a community led campaign in regional Victoria to raise awareness and build community resilience to resist the dangerous extractive process. National organisation Lock the Gate supported the campaign.

The award was presented by the Victorian Minister for Energy, Environment and Climate Lily D'Ambrosio to FoE's Coal and Gas Free Victoria campaigners.

FoE campaigner Chloe Aldenhoven said on the night: "We need people to take up the challenge of being part of our democratic processes, to find common ground and work together on our shared values, to take back control of our political system from the fossil fuel industry and other environmental and social villains, and to transform our society to bring us back to the values of health, community and protecting what we have for future generations."

Special thanks to Cam Walker, stalwart of Friends of the Earth and the heart of this campaign, who kicked off this movement and to all the communities across Victoria and Australia who were mad and courageous enough to stand up, work together and win one of the most comprehensive bans on onshore gas anywhere!

www.foe.org.au/victorian_premiers_sustainability_award



Sustainable Cities campaign launch

In October, FoE Melbourne launched a new Sustainable Cities Campaign with 'Walk This Way' - a 15 km community walk following Melbourne's iconic Capital City Trail to take community action on climate change and create a more liveable city.

Walk This Way saw 100 people get together to walk through where the Westgate Tunnel toll road development could be built, to hear about what other FoE campaigns have been up to, and share their vision for a sustainable city. Participants also raised over \$23,000 for FoE Melbourne through sponsorship for their walking efforts!

Participants joined the walk to raise awareness about the proposed Westgate Tunnel toll road development and the

climate change threats set to impact Melbourne. "Instead of clogging up the city with tunnels and tollroads, investing in public transport is the best way for Melbourne to rein in emissions and ensure this is a sustainable city for all" said Sustainable Cities coordinator Rachel Lynskey during the walk.

Local community members are concerned about another massive toll road through the middle of Melbourne, causing more traffic, creating more air and noise pollution, destroying the local environment and allowing more transport emissions locking us into extreme climate change. Local residents are not on their own. Melbourne City Council calls the project "a fundamental betrayal" undoing decades of work by

the council and state governments to reduce cars driving into the CBD.

Public transport services in the west are straining under increasing demand; the existing infrastructure has not kept up with population growth, pushing ever more commuters onto already congested roads. Let's start investing in sustainable transport solutions so people have real options for moving around our city.

Please contact Victorian Planning Minister Richard Wynne and add your voice to the call to stop this development. Visit www.melbourne.foe.org.au/say_no_to_westgate

More information: www.melbourne.foe.org.au/sustainable_cities

Pesticide detections in Victorian waterways

In October, FoE published the report 'Under the Radar - Pesticide Detections Victorian Water Supplies 2007-16.' The report collates all of the recorded pesticide pollution incidents detected by Victorian Water Authorities over the past decade. The main findings included:

- 619 positive pesticide detections in Victorian water supplies,
- 46 different pesticides detected with the most frequent being: 2,4-D, Atrazine, Triclopyr, MCPA and Simazine,
- 72% of the detected pesticides are probable endocrine disruptors, meaning that current guideline levels may not incorporate risks with low-level exposures,

- Highest risk land uses in domestic water supplies are: pastures, wheat, barley, triticale, oats, cereal rye, grass seed, triazine tolerant canola, lucerne, seed crops, ryegrass, pine and eucalypt plantations, millet, potatoes and blackberry spraying.

The top five risk areas over the past decade were: 1) Candowie Reservoir (water supply to Phillip Island), 2) Girgarre, 3) Wurdee Boluc system (Geelong), 4) Broken Creek, 5) Willimington Reservoir (Mt Macedon).

The most pesticide detections (52) occurred at the Yarra River offtake to Sugarloaf Reservoir, which supplies 600,000 people in Melbourne's northern and western suburbs.

There was one breach to the Australian Drinking Water Guidelines, a detection of the insecticide Monocrotophos at 20 times the safe level at Candowie Reservoir in 2011. This event was probably the highest pesticide pollution event in Victoria in 40 years. The source of the pollution was never identified by Westernport Water.

Three pesticide detections occurred in Melbourne suburbs. The small town of Girgarre recorded multiple 2,4-D detections for three months in 2010.

Anthony Amis, October 2017, 'Under the Radar: Pesticide Detections Victorian Water Supplies 2007-2016, <https://tinyurl.com/pesticide-waterways>

For more information on FoE's Pesticide Free Waterways campaign, contact [Anthony Amis, ajamis50@gmail.com](mailto:ajamis50@gmail.com)

Geneethics updates

FoE affiliate Geneethics reports:

South Australia's GM crops ban is extended till 2025! Parliament passed a Greens Bill with ALP support. This stops GM-free SA lapsing on September 1, 2019 and any moves to lift the GM ban must go back to parliament. Premiums for SA GM-free canola last week were up to \$34/tonne. There are also real "opportunities for Non-GMO Labeled Food Products from South Australia" as a market report found, with SA retaining its GM-free advantage in local and export markets.

www.pir.sa.gov.au/__data/assets/pdf_file/0004/282172/Executive_Summary_-_Adelaide_University_GM_Report.pdf

You are all invited to Gene Ethics 30th birthday celebration. Please come to our Potluck Picnic in Emerald Lake Park, Dandenong Hills, east of Melbourne, from 12.15pm on Wednesday December 27, 2017. It will be a fun day for all ages, and a time to recall our many wins through the years. *RSVP and map:* www.trybooking.com/book/event?eid=334234

Some new GM techniques and GM products would be deregulated if the OGTR's proposals are adopted. By 21 February 2018, please comment on the proposed amendments - tell Health Ministers not to shred the GMO rules!

<http://ogtr.gov.au/internet/ogtr/publishing.nsf/Content/reviewregulations-1>

https://friendsoftheearthmelbourne.good.do/stopthegovernmentsbreedingtherulesongmos/rein_in_the_regulator/
<http://tasmaniantimes.com/index.php?pr-article/reckless-deregulation-to-fast-track-new-gm-products-to-market/>

The US Defence Advanced Research Projects Agency (DARPA) seeks to "harness the power of biological systems" to unravel biology's secrets for military purposes. For instance, it is using new GM techniques to make spy plants that detect pathogens, chemicals, nuclear and electromagnetic radiation. But DARPA also spruiks "Safe Genes", to clean up ecosystems when GM "gene drives" run amok, overriding the rules of gene inheritance and natural selection. We'd also like to know if the Pentagon's allies in Australia are complicit in biological weapons and related research, with new GM plants, animals and microbes.

www.scientificamerican.com/article/darpa-rsquo-s-biotech-chief-says-2017-will-ldquo-blow-our-minds-rdquo/
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Forest defenders win Rawlinson Award

Forest campaigner Andrew Lincoln and FoE affiliate Goongerah Environment Centre (GECO) won the 2017 Peter Rawlinson Conservation Award in recognition of their critical work surveying and defending Victorian native forests. The honour, which celebrates outstanding voluntary contributions to protecting the environment, was awarded at the Australian Conservation Foundation's (ACF) annual general meeting in November.

GECO was nominated for the critical citizen science and on-ground surveying work of its volunteers to protect old growth trees and rainforest plants in East Gippsland forests, which provide critical habitat for species like the greater glider, long-footed potoroo, yellow-bellied glider, spiny crayfish and powerful owl.

ACF Chief Executive Officer, Kelly O'Shanassy, paid tribute to the winners saying their work was critical to defending Australia's prized native forests and arresting its world-worst extinction rates. "Both Andrew and

the volunteers with GECO have shown immense dedication and love for Victoria's beautiful native forest habitats. These forests are home to some of our most special creatures and serve as lungs for cities like Melbourne," O'Shanassy said. "Sadly, Andrew and GECO's work is necessary because our laws are too weak to properly protect our native forests and iconic wildlife, and our environmental authorities are not properly resourced to enforce what little protections do exist."

Forests campaigner with Friends of the Earth, Ed Hill, who works with GECO, said the tireless survey work by both was voluntary, exhausting and often thankless. "But it has directly resulted in the protection of thousands of hectares of Victoria's forests that would have been logged in breach of environmental protections if these surveys had not been done," he said.

www.acf.org.au/victorian_forest_defenders_win_2017_peter_rawlinson_award

Fight back against attacks on VicGasBan

Our hard-won bans on fracking and conventional gas development in Victoria are under attack from the gas industry and their lackeys in the federal government. Malcolm Turnbull keeps calling for Victoria's fracking ban to be lifted. Former PM Tony Abbott wants to use defence forces to force states to approve gas mining. Scott Morrison and others argue that states should lose GST revenue if they don't lift fracking bans, essentially blackmailing or "frackmailing" the states.

The Murdoch press - especially *The Australian* - continues to argue that lifting bans will make gas cheaper. And now the Victorian Coalition has announced it will lift the current moratorium on conventional gas drilling if elected next year.

But we know that gas prices are increasing because of price gouging by retailers and the massive export gas industry. And we know that new gas drilling will also add significantly to greenhouse gases.

Please contact shadow minister Simon Ramsey (simon.ramsay@parliament.vic.gov.au) as well as your local Coalition MP. Ask them to publicly distance themselves from the federal Coalition's push to force states to drill and frack. Remind them that people living regionally and in cities in Victoria do not support lifting the moratorium on conventional gas drilling.

www.melbournefoe.org.au/coal_and_gas



Victorian forest campaign updates

The past two months have been massive for forests! Logging was halted in old growth forest in Kuark, East Gippsland through a legal injunction and following more than 6,800 people emailing the Victorian Environment Minister.

FoE Melbourne made protection of native forests a major issue in the by-election for the Victorian state electorate of Northcote, won by Greens' candidate Lidia Thorpe. Lidia is the first Aboriginal woman elected to the Victorian parliament and a long-time advocate for native forest protection. Highlights of the Northcote campaign included:

- FoE forest collective leafletting every train station in the electorate on 14 consecutive mornings, holding street stalls, video projecting forest images on the streets and rolling out hundreds of GFNP posters across the electorate.
- Polling commissioned by FoE and other green groups revealing that more than 81% of Northcote voters support the creation of a Great Forest National Park (GFNP) and for more than one in five voters reporting the protection of forest is their most important issue.
- Several candidates declaring their support for a GFNP at a packed candidates' forum at Northcote Town Hall.
- Over 70 forest lovers helping us letterbox the entire electorate of Northcote about the issue of native forest logging ... that's 26,000 homes!

A Federal court case was launched by Environmental Justice Australia to stop the logging of threatened wildlife habitat in the Central Highlands. Over 30 environment groups have released a joint statement calling for a Great Forest National Park.

To mark National Threatened Species Day on September 7, a coalition of environment groups released a damning report that provides evidence of a systemic failure of the Victorian Labor government to enforce threatened species protection laws in native forests subject to logging. The 'Lawless Logging' report prepared by Friends of the Earth, Goongerah Environment Centre and Fauna and Flora Research Collective details 27 logging operations carried out by state-owned logging agency VicForests that have breached legal protections for threatened wildlife and protected rainforest since the Andrews Labor government was elected.

The Lawless Logging report calls on the Andrews labor government to act on four key recommendations:

1. Immediately prosecute VicForests in the courts for logging that has breached the Code of Practice, such as those detailed in the report.

2. Establish an independent forestry regulator to enforce compliance with the Code of Practice and ensure that threatened species habitat is at a minimum given the legislative protection afforded to it. The Department of Environment, Land, Water and Planning has proved itself to be weak, ineffectual and lacking the will to appropriately enforce compliance, therefore a fully independent statutory body should be established to take over DELWP's regulatory role.
3. End logging's legal exemption from federal environment laws by not renewing the Regional Forest Agreements. Place the logging industry on an equal footing with all other industries and assess all logging operations under the federal Environment Protection Biodiversity and Conservation Act
4. Establish new parks and reserves across eastern Victoria, including the Great Forest National Park and East Gippsland's Emerald Link to provide the required habitat needs for forest dependent threatened species to persist into the future.

On the day of the launch of the Lawless Logging report, FoE mobilised dozens of forest activists and coordinated with forest groups across Victoria to hold actions throughout the city highlighting the report's findings and recommendations.

- Banners were dropped over busy highways early in the morning and afternoon.
- Street teams handed out leaflets to hundreds of commuters at train stations in Brunswick, Richmond,

Clifton Hill, Preston, Monbulk, Caulfield and other locations.

- The Lawless Logging report was delivered to the offices of numerous politicians and posters, banners and signs were displayed at their offices and passers-by given information.
- A film by the Environmental Media Foundation showing graphic images of logging was run on the big screen at Federation Square throughout the day and was shown repeatedly over the coming month.
- Altogether, 7000 leaflets informing voters about the Lawless Logging report were distributed in key electorates.
- Over 400 emails were sent to the Environment Minister asking her to stop lawless logging, protect threatened wildlife and prosecute VicForests for breaches to regulations.
- After all that, at the end of the day in stormy weather, 150 people gathered on the steps of Parliament House calling on the Labor government to protect threatened wildlife from logging and unfurling a giant scroll detailing the extent of lawless logging in Victoria.

Environment Minister Lily D'Ambrosio requested a meeting to be briefed on the Lawless Logging report and *The Age* newspaper wrote a great story about the report's findings and recommendations.

The Lawless Logging report is posted at: www.melbourne.foe.org.au/massive_day_of_action_for_threatened_species_day

If you're interested in joining FoE Melbourne's Forest Collective, contact Sarah Day sarah.day@foe.org.au

Victoria's Renewable Energy Targets become law!

October 20 - This afternoon, community members involved in the campaign for the Victorian Renewable Energy Target applauded from the public gallery as legislation to enshrine targets of 25% by 2020 and 40% by 2025 passed into law. This outcome has happened thanks to community members who have backed FoE's Yes 2 Renewables campaign over the years - the VRET was conceived in Collingwood in the office of FoE Melbourne. It was initially viewed as a quixotic idea, yet gained support from all quarters thanks to the heart and soul of the campaign.

Some 10,000 jobs will be created as Victoria rolls out 5,400 megawatts

of solar and wind farms - a four-fold increase. Importantly, it will help Victoria meet its legislated climate change goals, cutting electricity sector emissions by up to 16%.

November 24 - More than 50 community members rallied in Hobart on November 24 outside the COAG energy council meeting, calling on state energy ministers to reject Turnbull's latest energy thought bubble, the National Energy Guarantee or NEG. The snap rally organised by FoE's Yes 2 Renewables campaign, AYCC Tasmania and Climate Action Hobart pointed out the Turnbull government's anti-renewables stance, hostility to climate action and failure to consult the community on energy and climate policy.

Market Forces

Updates from FoE affiliate Market Forces:

In response to a shareholder resolution coordinated by Market Forces, Commonwealth Bank chair Catherine Livingstone said at the bank's November AGM that the bank's "coal funding has been trending down and expects this will continue over time as the bank finances the transition to a low carbon economy." Put simply, this is Commonwealth Bank telling shareholders its overall coal exposure is only going to head in one direction – down – leaving little to no room for financing new coal projects. We've dealt with banks long enough to know not to take statements like this at face value, and will be following up to make sure the CommBank's actions match its words.

In August, the Commonwealth Bank confirmed they would not be in the running to finance the Adani Carmichael coal mine! This means all of Australia's big four banks, and two dozen banks around the world, have either taken a public position against financing Galilee Basin coal export projects or have introduced a policy that rules out funding the Carmichael mine.

In November, the Chair of Medibank's Board announced that Medibank will be divesting its international share portfolio of fossil fuels within 12 months and that it intends to do the same for their domestic share portfolio. Medibank emphasised that they are divesting because of climate change's terrible impacts on public health. Together we convinced Australia's biggest private health insurer to take a stand in favour of a transition away from fossil fuels. This is a significant shift that will reverberate through not only the health sector but the entire finance sector too.

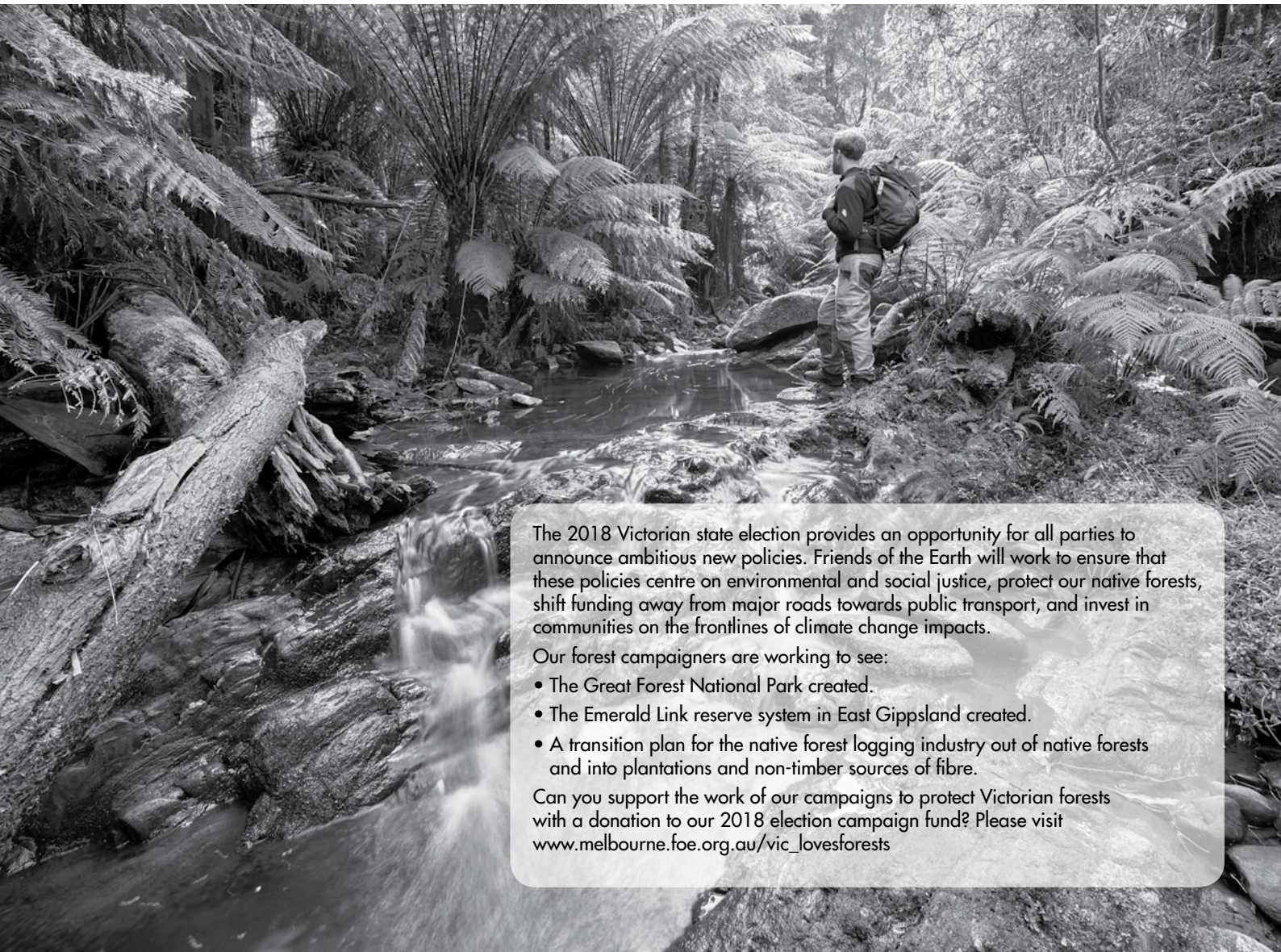
Also in November, the Global Coal Exit List was released, providing a comprehensive list of over 770 companies involved in the thermal coal value chain, including over 70 Australian companies (<https://coalexit.org>). The vast majority of Australian super funds invest in many local and international coal companies, meaning it's highly likely your retirement savings are invested in corporations whose business plans are set to drive the world beyond 2°C of warming. Take action – tell your super fund to act now to bring coal companies into line: <http://superswitch.org.au/news/coalexitlist/>

FoE calls for further investigations into regulations regarding PFAS and PFOS chemicals

In late September, FoE sent a submission to the Victorian EPA's PFAS (Per- and Poly-Fluoroalkyl Sulfonate) National Environmental Management Plan. FoE calls for further investigation into regulatory failure concerning PFAS chemicals.

PFAS chemicals are hydrocarbon molecules with fluorine in place of the hydrogen atoms. PFAS chemicals are heat-stable and water- and oil-repellent, making them popular for a myriad of applications e.g. non-stick cookware, stain- and water-repellent clothing and even fast-food packaging. PFAS have also been used in fire-fighting foams and this issue more than any other has caused environmental disasters across Australia.

The FoE submission is posted at www.foe.org.au/friends_of_the_earth_call_for_further_investigations_into



The 2018 Victorian state election provides an opportunity for all parties to announce ambitious new policies. Friends of the Earth will work to ensure that these policies centre on environmental and social justice, protect our native forests, shift funding away from major roads towards public transport, and invest in communities on the frontlines of climate change impacts.

Our forest campaigners are working to see:

- The Great Forest National Park created.
- The Emerald Link reserve system in East Gippsland created.
- A transition plan for the native forest logging industry out of native forests and into plantations and non-timber sources of fibre.

Can you support the work of our campaigns to protect Victorian forests with a donation to our 2018 election campaign fund? Please visit www.melbourne.foe.org.au/vic_lovesforests

The fight to protect Toolangi forest

Emma Chessell

In the past few years, the Toolangi community and its supporters have successfully intervened many times to halt the logging of Toolangi's remaining forests and their rich biodiversity. These gains have been won through continued pressure from a wide network of informed forest lovers. However, the interventions achieved in recent years have all been temporary and permanent protection is needed for Toolangi – through the creation of the Great Forest National Park.

Place of the Tall Trees

Toolangi is the gateway to the proposed Great Forest National Park. It is just over 50 km from Melbourne's GPO – which is hard to believe from inside the dense rainforest gullies that survive here, under the giant Mountain Ash.

Toolangi has been disturbed by bushfire and logging since early in Victoria's colonisation. The diversity of the forest that remains – including majestic isolated patches of old growth forest – are testament to how spectacular this country is in its natural state.

In Taungurung, the language of this area, Toolangi means *place of the tall trees*. Although the record is now doubted, a surveyor in the 1870s recorded a 132-metre-tall tree very close to Toolangi State Forest (if true, the tallest tree ever measured on earth). Toolangi is well known as important habitat for the Leadbeater's Possum and Greater Glider but it also harbours other rare plants and animals.

The heart of Toolangi survived the 2009 bushfires when all the surrounding country was burnt. That increased the urgency of its

conservation but there was no allowance made for the fire's impact on the forest ecosystem and logging continued with no reduction in rate throughout the Central Highlands.

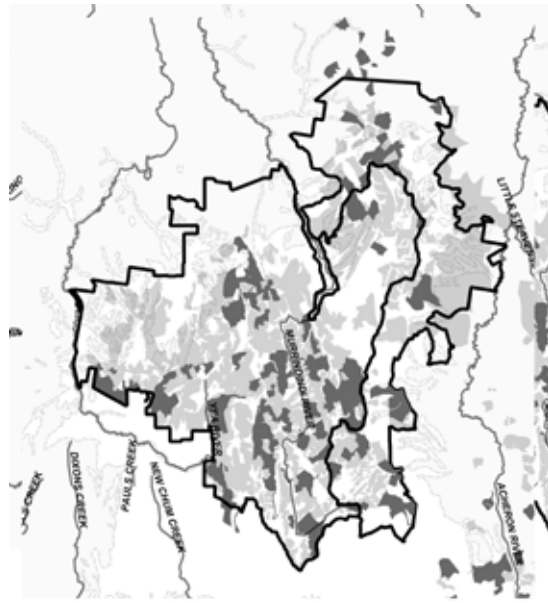
Despite decades of mismanagement and patches of recent disturbance, Toolangi is still a beautiful forest. Many studies prove that it is worth much more to Victoria left standing than through logging for paper and wood – most recently, an Australian National University report on ecosystem accounting showed that Central Highlands forests are worth \$310 million for water and \$260 million for tourism, compared to \$12 million contributed by logging (which erodes these other values).

A landscape of logging

The map of government logging agency VicForests' Timber Release Plan (which shows the areas planned for logging for the next 3-5 years) shows how logging will decimate the remaining mature forest of Toolangi.

Most of these unlogged areas are natural regrowth from bushfires that spread across Victoria in 1939. This regrowth is particularly important for wildlife because trees that remained standing after the fire are scattered through this forest as living or dead snags, providing hollows for arboreal mammals over the last 80 years. The regrowth itself is often referred to as *the old growth of the future* as it represents the most significant age-class of maturing forest in the Central Highlands that can provide habitat for wildlife in the near future.

This forest class is also valued by loggers because the 80-year-old trees grow as straight as poles.



Map of Toolangi's logged areas (light grey) and the current Timber Release Plan showing areas planned for logging (dark grey) in the next 3-5 years.

Different areas in this remaining forest harbour different natural values. The Yea Link Valley and Kalatha Valley (known as *Valley of the Giants*) grow giant Mountain Ash, hundreds of years old and full of hollows. Remnant cool temperate rainforest survives in gullies in the south of Toolangi and there is important Greater Glider habitat in mixed forest near Hermitage Creek towards the north. These areas and others, like the Tanglefoot Campground are important tourist draw cards for Toolangi. All of these precious areas are scheduled for logging and/or are currently being logged.

Critically endangered Leadbeater's Possums are found throughout Toolangi but always close to mature forest with existing stags and established understory - so they are often found in the 1939 regrowth allocated for logging.

Like all native forest, Toolangi is important in sequestering carbon and providing clean water (as mentioned, it has been demonstrated that these *ecosystem services* are worth far more than the logging industry.) Water from Toolangi feeds the Yarra and the Murray catchments and regenerating forest (growing back after logging) removes most of the water that would otherwise be filtered into these systems.

We won't stop fighting for Toolangi

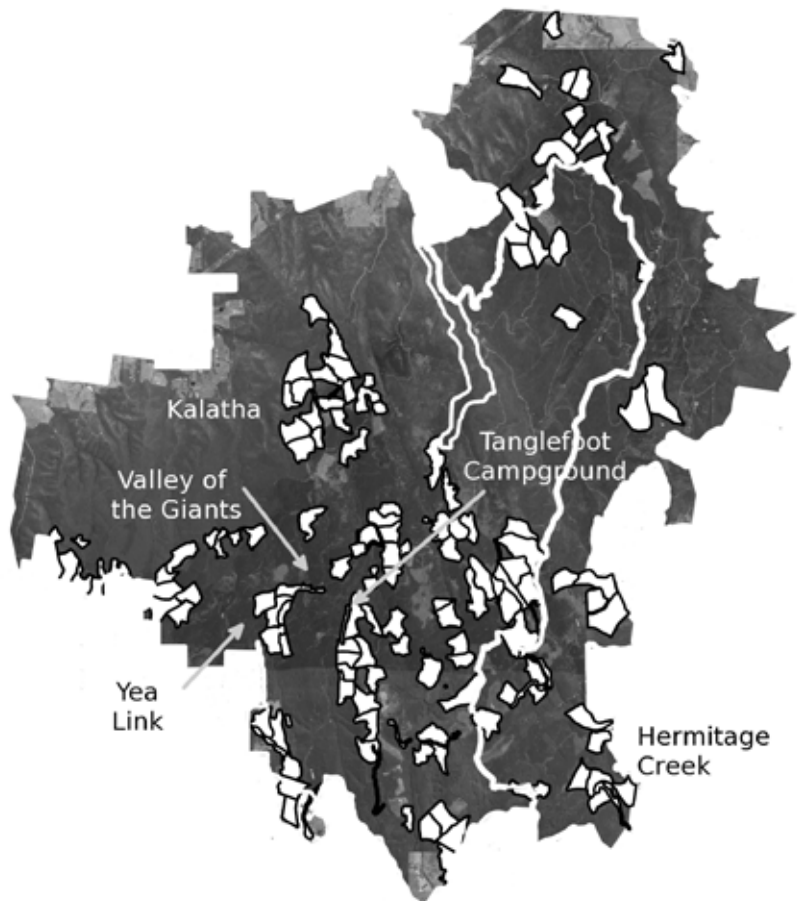
There has been a sustained campaign for Toolangi over many decades - and people have probably been fighting against logging here since it first started.

In 2012, in response to logging starting in the Valley of the Giants, the community raised over \$500,000 to take VicForests to court (through community group MyEnvironment) to stop them logging critically endangered Leadbeater's Possum habitat.

They won the moral victory of what was a landmark case, but lost on a technicality. The contested coupes remain unlogged but are still on the Timber Release Plan.

The Little Red Toolangi Treehouse maintained a community education forest camp and tree-sit for over five months in 2013 and Toolangi locals, the Knitting Nannas, have held knit-ins, protests and hosted visitors to the forest for many years and are still an active voice for this forest.

Community wildlife surveys, especially those carried out by Wildlife of the Central Highlands (WOTCH) and Fauna and Flora Research Collective (FFRC), in combination with a wide network of engaged supporters, have forced the government to intervene many times where logging was imminent or active in important wildlife habitats. A dedicated volunteer research effort is compiling evidence that is impossible to ignore about the importance of Toolangi's unlogged areas.



In April 2016, surveyors who had recently started volunteering with WOTCH found their first Leadbeater's Possum in a logging coupe in the Yea Link Valley the night before logging machinery was expected to arrive. This forest is still standing but is still on the schedule for upcoming logging.

Since then community groups have identified many Leadbeater's Possums in scheduled coupes, including active populations in every coupe involved in the 2012 MyEnvironment court case, which were argued by VicForests to be unsuitable for the species.

In June this year, logging started in a coupe next to the Tanglefoot Campground which is always in use by visitors to a busy and under-supported forest. Community protest, including picnics hosted by the Knitting Nannas, brought a halt to this work - only for logging to start again two months later. Sadly, clearfell is now visible from the campground.

In Hermitage Creek (drier mixed forest in the south of Toolangi) surveyors demonstrated an important Greater Glider stronghold in a coupe where logging machines had moved in. Eventually logging was stalled here too, only to commence in a nearby coupe where the process was repeated. These coupes are now stalled but not protected.

Toolangi is just one of a number of state forests where the community is sustaining a long-term struggle to conserve their beloved and priceless forest. The potential for logging here is almost exhausted - what will be left when the industry leaves depends on this effort.

How to get involved

There are a lot of ways to get involved in the fight for Toolangi's forests.

The Forest Collective at Friends of the Earth Melbourne meets fortnightly on Thursdays at 6pm at the FoE office in Collingwood, and organises actions through its many sub-collectives. Come along to share updates, coordinate and plan actions for our forests in the Central Highlands and East Gippsland.

WOTCH and Campfires & Science regularly organise public citizen science meet-ups in the Central Highlands. Come along!

You can follow the campaign online through the social media pages of FoE and the many Toolangi forest groups who coordinate campaigns through the FoE Forest Collective, including WOTCH, The Knitting Nannas of Toolangi and Little Red Toolangi Treehouse.

Or contact the FoE Forest Collective coordinator to find out more about getting involved and join our email list: sarah.day@foe.org.au

Central Highlands Community Wildlife Surveys

Volunteer community groups, like Wildlife of the Central Highlands (WOTCH) and Flora and Fauna Research Collective (FFRC) have committed thousands of nocturnal survey hours to identify wildlife habitat through the Central Highlands.

These groups have developed advanced field and scientific recording skills that are of a high enough standard to satisfy strict government requirements. Groups like WOTCH have also developed new field techniques, like the use of thermal imagery in wildlife surveys.

Their results have exposed the failure of the Department of Environment, Land, Water and Planning (DELWP), in their role as regulator of the forestry industry, to ensure wildlife protection.

Currently, the logging agency VicForests are charged with identifying rare, threatened and protected species in logging coupes, something they have failed to do time and time again, with DELWP failing to monitor this situation or take appropriate action when failures are exposed.

This systematic failure was documented in the Lawless Logging report available at www.melbourne.foe.org.au/loggingkillswildlife

Surveyors have found critically endangered Leadbeater's Possums in 14 scheduled coupes in Toolangi alone. It's highly unlikely that these surviving populations would have been identified without the incredible efforts of these volunteer citizen scientists. Many times, protected species have been found by the public in coupes when logging preparation has already started - clear proof that self-regulation isn't working.

Emma Chessell is a member of FoE Melbourne's forest collective.

FoE Forest Collective walk in 2017 to Hermitage Creek in Toolangi to the coupe where logging was halted thanks to surveys by Fauna and Flora Research Collective and Wildlife of the Central Highlands.

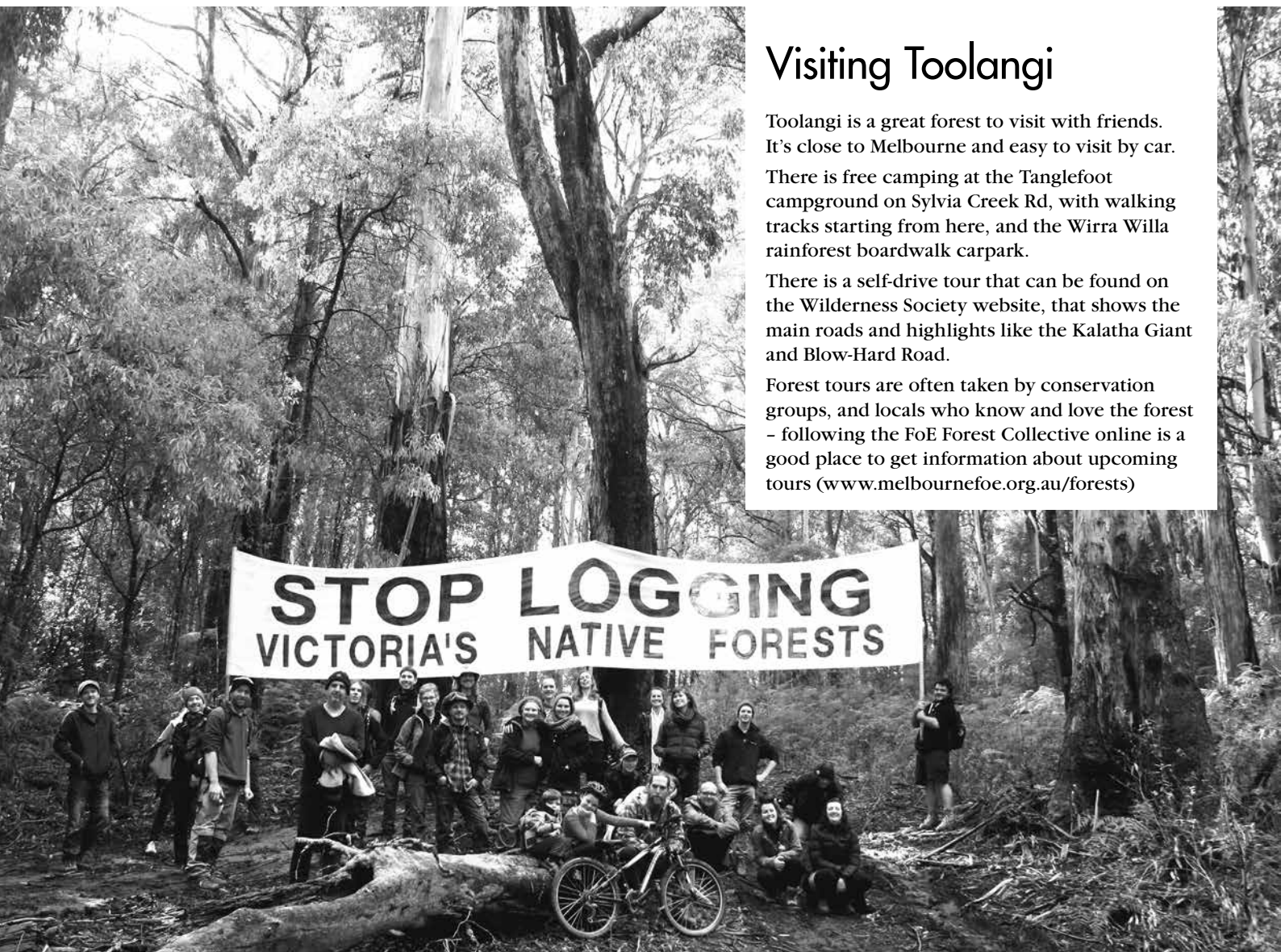
Visiting Toolangi

Toolangi is a great forest to visit with friends. It's close to Melbourne and easy to visit by car.

There is free camping at the Tanglefoot campground on Sylvia Creek Rd, with walking tracks starting from here, and the Wirra Willa rainforest boardwalk carpark.

There is a self-drive tour that can be found on the Wilderness Society website, that shows the main roads and highlights like the Kalatha Giant and Blow-Hard Road.

Forest tours are often taken by conservation groups, and locals who know and love the forest - following the FoE Forest Collective online is a good place to get information about upcoming tours (www.melbournefoe.org.au/forests)



Supreme Court injunction halts logging of Kuark old growth forest

Ed Hill

November 1 – Forest conservationists who established a blockade of old growth forest in East Gippsland are celebrating after environment groups secured a legal injunction that has stalled the logging operation.

Controversy erupted last week when VicForests constructed a road into the Kuark forest to commence logging. Goongerah Environment Centre launched an online petition calling on Environment Minister Lily D'Ambrosio to step in and protect the old growth forest. The petition has so far attracted over 6,500 signatures.

Lawyers from Environmental Justice Australia, acting for Fauna and Flora Research Collective, secured a Supreme Court injunction to halt the logging arguing that the government has not protected the minimum required area of old growth forest in East Gippsland.

It's a relief that this precious area has been given temporary protection, but it is disappointing the state government failed to act and community groups had to take legal action to force the government to protect old growth forests as they are required to.

It's absurd that the government refused to prevent logging and is now going to spend tens of thousands of taxpayer's dollars in a court battle arguing they don't have to protect old growth forests. The government is completely out of touch, not only with their legal obligations but with the community, who overwhelmingly support the protection of old growth forests.

Twenty people took peaceful direct action to prevent logging from starting as the government failed to protect this forest, now that the Courts have ruled that no logging can take place until legal proceedings are resolved the blockade camp is celebrating.

Protesters have vowed to return to the forest if logging does go ahead after legal proceedings have run their course. Logging old growth forests in a rich state like Victoria in 2017 is completely unacceptable and people will peacefully protest with the backing of the Victorian community.

The Minister's announcement that some trees would be protected did not go far enough to protect this forest. So-called habitat trees that are left standing by loggers are almost always killed in the post-logging burn conducted by VicForests and the Department. Grave-yards of dead and burnt so-called habitat trees can easily be seen in almost every logging area in East Gippsland.

This forest is part of Victoria's forest heritage,



a rare example of what our forests looked like hundreds of years ago. To continue to destroy these last remaining unprotected old growth forests is not only having a profound impact on biodiversity and the threatened wildlife that depends on them but it's also robbing future generations of experiencing these forests that remain in a pristine untouched state.

Premier Daniel Andrews must move the government's environment policy into the 21st century and protecting East Gippsland's highly valuable and biodiversity-rich forests must be at the top of his list.

VicForests is applying for Forest Stewardship Council (FSC) certification later this year. This certificate is internationally regarded as having the strictest environmental standards and prohibits logging in old growth areas and threatened wildlife habitat.

The logging that was to take place in the Kuark forest and many other forests in East Gippsland is completely out of step with the strict standards required by the FSC certificate. Unless VicForests make drastic changes to their practices and protect high conservation value forests, they will fail to achieve FSC certification and access to timber markets that increasingly demand sustainably-sourced FSC-certified products.

Ed Hill is a forest campaigner with Friends of the Earth Melbourne and a spokesperson for Goongerah Environment Centre.

More information: www.geco.org.au

Climate migration: No dignity in inaction

Léa Vavaskeur

Environmental migration is not a new phenomenon. Humans have moved to adapt to the seasons, to find new resources, because of drought, soil erosion, or major natural catastrophes. But because of climate change, there are some new aspects about this migration, not only the scale at which they are expected to be experienced, but also the origin of the natural hazards that force people to flee their homes. It is now widely accepted among the scientific community that climate change and resulting environmental degradation are driven by human activities, especially industrialisation and the over-exploitation of resources generating excessive greenhouse gas emissions.

The reality of climate change migration has gradually been acknowledged at the highest levels. Anote Tong, former president of Kiribati, has played a prominent role in this recognition by putting the anticipation of future migration at the forefront of his political agenda, and by promoting the idea of “migration with dignity”.

The issue is now recognised as one of concern by international organisations such as the UN and the World Bank. Many research programs have been launched and some interesting reports have already been published. Among others, the International Organisation for Migration set up an Environmental Migration Portal which consists of a “knowledge platform on people on the move in a changing climate”.¹ The organisation also worked with the European Union who financed the project Migration, Environment and Climate Change: Evidence for Policy. Focusing on six pilot countries, including Papua New Guinea, the project started in January 2014 and finished in March 2017. Its aim was to explore how migration can be conceived as an adaptation strategy to address environmental and climate changes.²

However, migration in some circumstances goes much further than only adaptation, and its inclusion in the set of “adaptive measures” promoted by international bodies is questionable. The relocation of a community to a completely new geographical and cultural area is extremely challenging for the moving population as well as for the hosting one, and the challenges involved turn migration into something much more radical than simple adaptation. It is about building a new model while maintaining a community at the same time.

Friends of the Earth Australia affiliate *Tulele Peisa*, a relocation program from the Carteret Islands to mainland Bougainville, has had to negotiate land, build relationship with host communities, train families to grow new crops, and find funds to finance the building of houses. These processes are made even more complicated for community-based projects

such as *Tulele Peisa*, as they find it difficult to access funding from big intergovernmental organisations and other multilateral funding sources that tend to go through governments.

Other international research projects on the topic have been undertaken. The Nansen Initiative focusing on disaster-induced, cross-border displacement was launched in 2012 by Switzerland and Norway to build consensus on a ‘Protection Agenda’ addressing the needs of people displaced across borders in the context of disaster and climate change.³ This was achieved through various regional consultations and civil society meetings, one of them in the Pacific. The Protection Agenda was finally endorsed by 109 government delegations, Australia being one of them, during a global intergovernmental consultation in October 2015 in Geneva. It calls for the integration of effective practices by states and (sub-) regional organisations into their own normative frameworks rather than a new binding international convention.

Considering that the Pacific region is composed of island states, dealing with cross-border migration is particularly challenging. There are no bordering countries to islands, and movement will only be enabled through the provision of visas and other intergovernmental agreements. The Nansen Initiative Protection Agenda promotes such pathways for people forced to move, and the Initiative has been followed up by the creation of a Platform on Disaster Displacement focusing on the implementation of this Agenda.

Ongoing recognition of the issue in the academic domain and international political arena is crucial. Alongside the programs previously mentioned, a research structure was also created in Liège (Belgium) in 2016, the Hugo Observatory, dedicated specifically to the study of environmental changes and migration. A Global Compact for Migration (without a unique focus on climate migration) is expected to be adopted at an intergovernmental conference on international migration in 2018. These initiatives enable the development of a knowledge base as well as legitimising claims relating to climate-induced migration. However, these approaches remain theoretical, and all these research programs hardly translate into concrete solutions and action plans. While some of them may call for these, the underlying issue of political will remains to be addressed.

Labour migration

Another approach to climate migration, that might be more successful in terms of its capacity to offer pathways for people willing to move before a critical stage has been reached, is the framing of the issue in terms of labour migration rather than community relocation. Migration is

The relocation of a community to a completely new geographical and cultural area is extremely challenging for the moving population as well as for the hosting one, and the challenges involved turn migration into something much more radical than simple adaptation.

promoted as an economic opportunity for both the host state and the migrant's community of origin. This approach relies on the idea that "large scale community relocation due to either chronic or sudden onset hazards is and continues to be an unlikely response".⁴ Another framework is therefore proposed, relying on the promotion of labour migration, enabling people to migrate temporarily and send money back home. One specific report has been issued by the World Bank with regard to the situation in the Pacific, promoting the opening of New Zealand and Australia's borders to Pacific Islanders, and advocating for the development of more programs in Australia like the Seasonal Worker Program.⁵

However, that kind of solution raises certain questions. The Seasonal Worker Program set up in Australia does not provide long-term migration solutions. It only enables workers to come without their family for 6-9 months depending on the country they are from, with the obligation to go back for at least five months to their home country. This is a way for Australia to compensate for its labour shortages and to bring relatively cheap labour to work on its farms. These workers are particularly vulnerable to abuses as they are cut off from any community support. An article was recently published in *The Guardian* denouncing the conditions in which they are treated and suggesting a parallel with the old practice of blackbirding, which consisted of the kidnapping of Pacific islanders, shipped away to work in Australia, mainly in Queensland's sugar cane plantations.⁶

In general, labour migration, as promoted by the World Bank and other international organisations such as the International Labour Organisation⁷ or the United Nations Development Programme, relies on the dominant global model of development and growth without offering any real alternative or mitigation measures to climate change. On the contrary, it promotes the integration of new communities into the market economy and the system that is provoking environmental degradation. This benefits industrialised countries' economies, while at the same time slowly breaking the ties between the migrants and their homeland and self-sufficiency.

National security

Another questionable trend is the tendency to frame climate-induced migration as a national security issue, threatening the stability and population of destination countries. This is

well illustrated with discourses revolving around the idea of climate change as a threat multiplier and the inclusion of migrations into reflections on the notion of national security. It is quite symptomatic that under the Trump administration, the body that seems to remain the most open when it comes to discussions about climate change is the Department of Defense.⁸ The issue of migration is mostly framed as a problem, and rather than offering real solutions to the communities affected by climate change, and anticipating that they will have to move, the focus tends to be on preparing for potential future conflicts due to these movements.

Climate migration is an incredibly complicated issue and no miracle solution has been found yet. However, Australia has a specific role to play, not only by tackling the root causes of climate change through the reduction of its own environmental impact, but also through the provision of solutions to those needing a proactive response when they are compelled to move. As a country that boasts about its good relationship with its Pacific neighbours and its involvement in the Pacific region, Australia could be at the forefront of an ambitious and innovative policy through the opening of its borders to Pacific islanders forced to move because of climate change. Most of them actually don't want to move to Australia, and the majority of climate migrations will occur within national borders. But the Pacific area is particularly vulnerable to sea level rise, and it has already been recognised that some countries – Kiribati, Tuvalu and the Marshall Islands – are highly likely to be completely submerged even if drastic greenhouse gas emission reductions are made in the near future.

Ranking as the third worst country in the world in term of ecological footprint per capita, after Luxemburg and Qatar and before the United States⁹, Australia has a responsibility to offer solutions to those of its neighbours who are victim of its excesses. This necessity for Australia to provide safe migration pathways to Pacific Islanders is not a new idea – it has been supported by Australian think tanks such as the Lowy Institute and Menzies Research Centre, and the Labor Party itself issued a document on the issue in 2006.¹⁰ It is now time to reactivate the idea in the political arena.

Léa Vavasseur is a Masters student in Sustainable Development at Sciences po Lille (France). She recently completed a two months internship with Climate Frontlines, Friends of the Earth Brisbane.

On the contrary, it promotes the integration of new communities into the market economy and the system that is provoking environmental degradation. This benefits industrialised countries' economies, while at the same time slowly breaking the ties between the migrants and their homeland and self-sufficiency.

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How to respond justly to climate change displaced persons

Claire van Herpen

Climate change poses an enormous threat to human security in the 21st century, with the most devastating impact predicted to be displacement and forced human migration. The UNHCR warns that the potential scale of such movement could range from 25 million to one billion people by 2050¹ while the International Organisation on Migration projects a figure of 250 million by 2050.² We are already witnessing global impacts such as more extreme and increased weather events, sea-level rise and severe droughts and will continue to see a rise of a new category of refugee that is not currently defined or protected under international law: the Climate Change Displaced Person (CCDP).

The UNHCR reports that more people are now displaced by natural disasters and the impacts of climate change than by conflict. Close to home, a 2011 report released by the London School of Economics warned that by 2050, Pacific nations alone could be grappling with up to 1.7 million climate migrants.³ This movement of people, both internally (within their country of origin) and externally (trans-border), in response to climate-induced events, calls for an urgent global response.

Despite such dire predictions, people displaced by climate change and environmental degradation currently fall outside the scope of the UN's 1951 Refugee Convention. Under the Convention (Article 1A(2), as amended), the legal definition of a refugee is a person who: *“owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable, or owing to such fear, is unwilling to avail himself of the protection of that country; or who, not having a nationality and being outside the country of his former habitual residence as a result of such events, is unable, or owing to such fear, is unwilling to return to it”*

Within the Convention's definition, no clear provision for CCDPs exists and therefore these victims cannot currently be legally afforded refugee status.

Can this crisis be effectively addressed by expanding the mandate of the Refugee Convention to include provision for “climate change refugees”? The short answer is ‘no’. On the surface, this option appears to be the most logical course of action and tends to be the “default” policy response to the situation. The reality is, however, that there are mitigating factors that would render such an approach dangerous.

One key issue is that, owing to the refugee definition requiring the crossing of international borders, an expansion of the current definition would exclude the vast majority of CCDPs who will be displaced within their own countries. While there will be many cases where climate induced displacement will require the crossing of state borders, the vast majority of CCDPs will remain in their country of origin, meaning that under the Refugee Convention, these victims would remain unprotected.⁴

The International Organisation on Migration rejects the term “environmental refugee” or “climate refugee”, preferring to use the term “environmentally displaced person”, believing that the term “refugee” should remain limited to trans-boundary flight, mainly because the Refugee Convention is ‘restricted to persons who cannot avail themselves of the protection of their home state for fear of persecution’.⁵

While the UNHCR has recognised the rising numbers of CCDPs and has had some involvement in assisting people internally displaced by natural disasters, it states that fundamental differences between the externally displaced and internally displaced raise major points of contention. The organisation warns that expanding the scope of the existing Refugee Convention to accommodate CCDPs would be a counter-productive response, citing a fear of a reduction in protection for traditional refugees whom it already finds itself stressed and under-resourced to protect and assist. It argues that to place both groups together under the same mandate would ‘further cloud the issues and undermine efforts to help and protect either group and to address the root causes of either type of displacement’.⁶

A frequently raised argument is that those displaced by climate change could still theoretically rely on the protection of their national government, therefore differentiating them from traditional refugees whose states are often the source of persecution. In a sad irony, however, the vast majority of CCDPs will be from poorer, developing countries where other major contributing factors, such as development, population and socio-economic pressures, political instability and civil war will be compounded by the effects of climate change. This fact is particularly sobering because countries that have contributed least to climate change are the ones who will be the worst affected. While states are legally required to protect their citizens in cases of displacement, they are often unable, and sometimes unwilling, to do so.

A case in point is Kiribati, a small Pacific Island

More people are now displaced by natural disasters and the impacts of climate change than by conflict.

nation suffering from the effects of sea-level rise which is swallowing up available land and contaminating the fresh water lens, rendering the land infertile. Kiribati's residents live a subsistence lifestyle and its per capita CO₂ emissions are 0.3 tonnes – minute when compared to Australia's per capita emissions of 28 tonnes.⁷ In the short term, citizens are being internally displaced and forced to move to safer areas. Inevitably, however, the entire population of Kiribati will have no other option but to relocate altogether.

While resistance by the UNHCR and International Organisation on Migration to define victims of climate change displacement as refugees might appear to contravene their fundamental humanitarian ideologies and principles, we must consider the legal ramifications and subsequent responsibilities that would result from such a move. Experts agree that due to the sheer scale and projected number of those likely to become displaced, it would very likely be to the detriment of both “traditional” refugees, whose status is clearly defined, and CCDPs if both groups were placed under the same mandate.

Ultimately, the Refugee Convention was established 60 years ago (decades before awareness of climate change and CCDPs arose) in response to the escalating refugee flow in post-war Europe and its aim is to protect those facing the type of persecution based upon one of the reasons explicitly set out in Article 1A(2).

Finally, the Refugee Convention deals only with adaptation and does not have the capacity to establish and incorporate vital long-term, pre-emptive, managed migration. It is crucial that we acknowledge the issue and implement planning measures so that victims of climate change displacement don't become “refugees” in the first place and that they can ‘migrate with dignity’.

Climate change displacement is an incredibly complex and multi-faceted issue that requires a new, legally-binding, stand-alone Convention to ensure the needs of this new group of ‘refugees’ are sufficiently met, without detrimentally affecting the needs of ‘traditional’ refugees. The multi-causal nature of climate change displacement is a critical factor that must be taken into careful consideration by policy makers. The sheer scale and complex nature

of climate change displacement requires a specialised solution; a “one size fits all” policy response is not going to be effective. A CCDP Convention must incorporate international, regional and national responses that are informed by a bottom-up approach that encourages the involvement and input of displaced citizens and communities, which, in turn, would assist in increasing transparency and accountability.⁸

The overwhelming disparity regarding the cause and effects of climate change and resultant displacement highlights the importance of the inclusion of principles of climate justice. Richer, industrialised nations, whose CO₂ emissions have overwhelmingly contributed to climate change, have a deep moral obligation to fund and resource efforts to assist those who are, and will increasingly, suffer as a result. Australia must take climate change mitigation seriously and our government must ensure we take the lead in providing assistance and protection to our neighbours in the Pacific Islands region.

Unlike the Refugee Convention, a CCDP Convention could be dual-focused, with emphasis placed on adaptation and response. The implementation of anticipatory, managed migration systems would provide a means for inhabitants of nations threatened by slower-onset effects, like Kiribati, to retain a certain amount of control over their relocation and for the process to be one of pre-emptive resettlement rather than refugee flight.

While the CCDP issue is complex and one cannot claim to have every answer to a problem there is still so much to learn about, it is clear that expanding the existing refugee regime is not a suitable option as it would potentially hinder, rather than protect, CCDPs. Without a new protection framework, the situation that CCDPs will face could result in a global humanitarian catastrophe. The international community must act in solidarity to fulfil their moral and, hopefully, in the future, legal obligations, to minimise the impacts of this crisis.

Claire van Herpen is a Melbourne-based member of Friends of the Earth's Climate Frontlines Collective. Her full dissertation is posted at <http://archive.foe.org.au/sites/default/files/Claire%20van%20Herpen%20-%20A%20Rising%20Tide.pdf>

Climate change displacement is an incredibly complex and multi-faceted issue that requires a new, legally-binding, stand-alone Convention to ensure the needs of this new group of ‘refugees’ are sufficiently met, without detrimentally affecting the needs of ‘traditional’ refugees.

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Building a cross-party network to support the opening of Australia's borders to climate migrants from Pacific Islands

Léa Vavasseur and Wendy Flannery

As part of its Climate Frontlines campaign, Friends of the Earth is proposing to mobilise Australian politicians around the promotion of solutions and safe pathways for climate migrants from the Pacific Island states.

We would like Australia to open its borders to Pacific Islanders who will have to move because of climate change. Most of the relocation programs will take place internally and most people don't want to come to Australia, but solutions should be offered in order for people to have a choice.

The solutions offered by Australia should be new migration pathways, but also assistance with intra-country evacuations and the provision of solutions at the local level.

We are proposing that this group would lobby for Australia to open up consideration of the issue and offer the opportunity for a discussion of options at the formal level of the Pacific Islands Forum, the context in which concrete solutions would have to be worked out.

There are some ideas for how this might happen being proposed by organisations seeking to address the challenge of climate migration.

These include the recognition that a new legal framework will be needed – or at least a formal agreement – at international level. However, in responding to the challenge of climate migration, Australia is in a unique position in relation to the Pacific Islands, and could provide a test case of potential value in other contexts. Australia could – and should – take initiatives without waiting for international conventions or other agreements.

Diplomatic aspects

If it provides a solution in the Pacific, Australia would be recognised as providing a positive example. Presumably it would also enhance Australia's status in the Pacific Islands Forum.

There are many international research initiatives about the issue of climate migration at the moment: Nansen Initiative, Platform on Disaster Displacement, International Organisation for Migration, UNHCR, Global Compact for Migration, all focusing in a certain way on the issue. Australia could take a leading role in the reflection on these issues, but also in the development and application of solutions.

Australia has obligations under the UN Framework Convention on Climate Change (UNFCCC) to assist Pacific island countries to adapt to the impacts of climate change. Dealing with the issue at the level of the Pacific makes it possible to provide concrete action outcomes.

1.7 million Pacific Islanders are likely to have to move because of climate change (LSE study), 250 million people worldwide (UN estimate). Among the 1.7 million Pacific Islanders, most would move internally.

Economic aspects

As part of the preparation for the UN COP23 climate conference in Bonn, under the leadership of Fiji, Pacific leaders considered economic aspects of the issue under the Loss and Damage mechanism of the UNFCCC. One of the ways they are doing this is by promoting insurance: it will cost Australia less to think now about long-term solutions, and progressive adaptation, rather than having to deal with a crisis when it is here.

Moreover, it has been shown that it is in the interest of Australia to welcome workers from the Pacific Island states, especially in a context of labour shortages. Labour mobility should be considered but with a longer-term perspective than seasonal worker programs, offering permanent residency and family reunion.

Security

As is already happening in many places where climate change is devastating people's environment and livelihoods, the impacts of climate change in the Pacific have the potential for destabilising communities and generating conflict.

Australian communities must be prepared to host new populations and it is necessary to think about it beforehand. There are already a number of well-established organisations among the Pacific diaspora in Australia. It would be important to work with them.

Former initiatives to consider and build upon

"Our drowning neighbours – Labor's Policy Discussion Paper on Climate Change in the Pacific" (2006). Issued by Bob Sercombe and Anthony Albanese, this provided an ambitious policy for the Labor Party. Unfortunately, it was not endorsed after the ALP was elected in 2007. But there is potential to draw on that work, and try to update and reactivate the propositions that were made at that time. Could one of the ideas in the paper be reformulated in terms of a regional Pacific Climate Migration Alliance: to develop a common agenda for tackling climate migration at the regional level?

New Zealand Pacific Access visa. This allows a certain number of citizens from particular Pacific countries such as Fiji, Tuvalu, Tonga and Kiribati to be granted residence in New Zealand each year. The World Bank is advising Australia to put this kind of visa in place, even advocating for an Australia–New Zealand Atoll Access visa.

Migration with dignity, Kiribati's policy. This initiative was promoted by former president Anote Tong, who also had his country buy land in Fiji. The policy focused on the idea of 'migration with dignity' which implies labour migration and training. Some examples of this are the training of

seafarers to work on overseas shipping lines, Australia's Seasonal Worker Program, and the Australian funded Nurses Initiative.

Nansen Protection Agenda. Australia is a signatory to this document. It offers solutions at the national level rather than focusing on a new international convention, such as the creation of specific visas for people forced to move because of climate change and natural disasters. It focuses on Pacific Island states with no bordering countries, nowhere to go, no possibility to move without inter-state agreements.

These ideas have been tested with one sympathetic and encouraging federal senator. They are designed to evolve with time and in discussion with politicians. Any input enabling us to reinforce our arguments would be more than welcome! We also welcome suggestions of potentially "friendly" politicians to approach. Wendy Flannery can be contacted at wendy.flannery@foe.org.au, 0439 771 692.

Wendy Flannery is a member of the Climate Frontlines collective at Friends of the Earth Brisbane. Léa Vavasasseur recently completed an internship with Climate Frontlines.

Utilities scramble to catch up with stunning fall in renewable energy costs

Tim Buckley

Renewable energy is disrupting electricity markets worldwide. The pace of this change has surprised almost everyone, and indeed would have been difficult to imagine just a few years ago. From Europe to Asia, from the Americas to Africa, wholesale electricity prices are being pushed down by the rise of renewable generation, which has no fuel costs, a disruptive zero marginal cost of production and whose developers can now consistently outbid fossil fuel-based generation.

The Institute for Energy Economics and Financial Analysis (IEEFA) has released a new report that documents the gathering momentum of this trend, and how the impact of renewables on electricity prices is a key driver of this change. Crucially, renewables need only capture a relatively small market share for disruption to occur, and to accelerate. While it may take decades yet for renewables to become the dominant form of generation globally, their presence today is permanent, economically rational and their advance inevitable. The combined loss in market capitalization of the underperforming utilities covered in the report from 2007-2016 totaled US\$185 billion.

Some highlights:

- Across Europe, dramatically lower wholesale electricity prices have created significant disruption and provide perfect case studies on how late-transforming utilities have left shareholders with enormous, ongoing stranded asset write-downs by not comprehending and seizing the renewable-energy mantle quickly enough.

- In the US, renewable energy leader NextEra has undertaken a decade long investment program to redeploy operating cashflows progressively into renewables as a means to build a sustainable, outperforming business model while providing power at low prices. In contrast, NRG has destroyed shareholder value as it reverted to a fossil fuel based strategy.
- In China, the merger of China Shenhua and China Guodian stands to create the world's largest power company by installed capacity (225 gigawatts (GW)). This also provides Shenhua with a significant diversification away from its historical position as the world's largest coal miner to a vertically integrated, financially robust utility with 20% of its assets employed in renewable infrastructure.
- In India, which passed a milestone in 2017 when solar tariffs have come in lower than the cost of power generated from coal-fired capacity, the country's main national utility, NTPC Ltd has shifted its strategic focus dramatically, with an audacious plan to facilitate 25 GW of renewable infrastructure projects by 2022.
- In Australia, electricity prices have become a major political issue driven by consistently chaotic energy policy and a resulting delay in renewable-energy rollout, but AGL Energy has performed relatively well by taking advantage of the resulting record high wholesale prices while using the delay to position for the inevitable technology driven transition to come.

The share market performance disparities among utilities in this regard is considerable. Some like NextEra Energy and ENEL are world leaders in preparing for electricity systems dominated by renewables, while others are laggards like Eskom and NRG, unwilling to modernize their business models. IEEFA's report presents 11 case studies of leading global electricity utilities that collectively illustrate the wide variation in readiness for a future of cheap renewable energy.

Tim Buckley is Director of Energy Finance Studies Australasia for IEEFA. The IEEFA report: Tim Buckley and Simon Nicholas, 2017, 'Global Electricity Utilities in Transition, Institute for Energy Economics and Financial Analysis, <http://ieefa.org/wp-content/uploads/2017/10/IEEFA-Global-Utilities-in-Transition-11-Case-Studies-October-2017.pdf>

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Renewable energy targets – Comparing Victoria’s laws with the ACT and California

Luiza Riottot

The Victorian Renewable Energy Target (VRET), now written into law as the Renewable Energy (Jobs and Investment) Bill 2017, passed the upper house in State Parliament on October 20. Elsewhere, other states such as the ACT and California have previously introduced renewable energy targets (RET) in their legislation. How does Victoria’s legislation compare? Let’s first look at Victoria *vis a vis* the ACT, and then California.

Greenhouse emissions and renewable energy targets and in the ACT

A RET was first set in the ACT’s legislation through section 9 of the *Climate Change and Greenhouse Gas Reduction Act 2010* (‘Climate Change Act’), which provides that ‘A regulation may prescribe targets for the use or generation of renewable energy in the ACT’.

The *Climate Change Act* promotes the development of policies and practices to address climate change and it uses a RET as a mean to achieve such policies. Yet, according to section 9, no percentage or quantity of renewable energy requirement is imposed by the Act. It is the role of the Minister for the Environment and Climate Change to determine the RET by disallowable instrument. (A disallowable instrument is a determination made by the Minister or the Secretary containing guidelines that must be taken into account in making decisions. A disallowable instrument must be notified in the Gazette and must be laid before each House of Parliament within 15 sitting days of the making of the instrument. The instrument will come into effect if: no motion of disallowance has been moved within 15 sitting days in either House, or such a motion has been withdrawn or defeated.)

Evolution of RETs determined by the Minister in the ACT:

2011: 25% by 2020

2013: 90% by 2020

2016: 100% by 2020

Source: www.legislation.act.gov.au

It is important to note that section 7 of the Climate Change Act provides for very precise interim targets for the reduction of greenhouse emission to achieve the target of zero net emissions by 2060: 40% less than 1990 levels by 2020 and 80% less than 1990 levels by 2050.

The ACT *Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011* (FiT Act) gives effect to government policies regarding greenhouse gas emission reduction and renewable energy targets by establishing

a scheme to support the development of large-scale renewable energy generation capacity for the ACT. The FiT Act enables the granting of Feed-in Tariff entitlements, for a total capacity of the generating systems of large renewable energy generators of 550 megawatts (MW).

The enactment of the very ambitious RET of 100% by 2020 required an increase in the total renewable energy production capacity permitted by Feed-In entitlements. Therefore, the *Renewable Energy Legislation Amendment Act 2016* (ACT) was passed in 2016 to amend the *FiT Act* and increase the total capacity under Feed-In entitlement from 550MW to 650MW.

Renewable Energy Standard Targets and the Energy Commission in California

California has proven to be a world leader in renewable energy policy. It has imposed some of the most progressive renewable energy standards requiring both retail, sellers, and local publicly owned electric utilities to increase their procurement of eligible renewable energy resources. The California Energy Commission is the state’s energy policy and planning agency. One of its functions is to implement the Renewable Portfolio Standard Targets (RPS), i.e. the percentage of retail sales from renewable energy to be achieved by the deadline.

Renewable energy targets timeline in California:

2002: 20% by 2017 (Senate Bill 1078)

2006: 20% by 2010 (Senate Bill 107)

2011: 33% by 2020 (Senate Bill X1-2)

2015: 50% by 2030 (Senate Bill 350)

California is ahead of schedule meeting its renewable energy targets. The Energy Commission estimates that about 29% of its electricity retail sales in 2016 were served by renewable energy generated from sources such as wind, solar, geothermal, biomass, and small hydroelectric.

The California State Assembly is currently discussing Senate Bill 100 which would impose a 100% target by 2045 through the 100 Percent Clean Energy Act of 2017. This means that retail sales of electricity in California would have to come entirely from eligible renewable energy resources and zero-carbon resources by December 31, 2045. The Act would also impose accelerated deadlines, to reach 50% renewables by 2026 and 60% by 2030.

The Energy Commission is responsible for implementing legislation pertaining to renewable energy. The Commission is led by

five Commissioners, appointed by the Governor, with Senate confirmation. The Public Utilities Code is providing detailed tools and actions the Commission must undertake to achieve renewable energy targets. For instance, under the Public Utility Code, the Commission shall establish the quantity of electricity products from eligible renewable energy resources to be procured by the retail seller for each compliance period, and it shall also assess penalties for non-compliance.

It is interesting to note that Senate Bill 100 (for a future 100 Percent Clean Energy Act) contains a provision stating that the achievement of the renewable energy policy 'shall not increase carbon emissions elsewhere in the western grid and shall not allow resource shuffling' in order to preserve the spirit of Senate Bill 100.

Victoria's Renewable Energy (Jobs and Investment) Act 2017

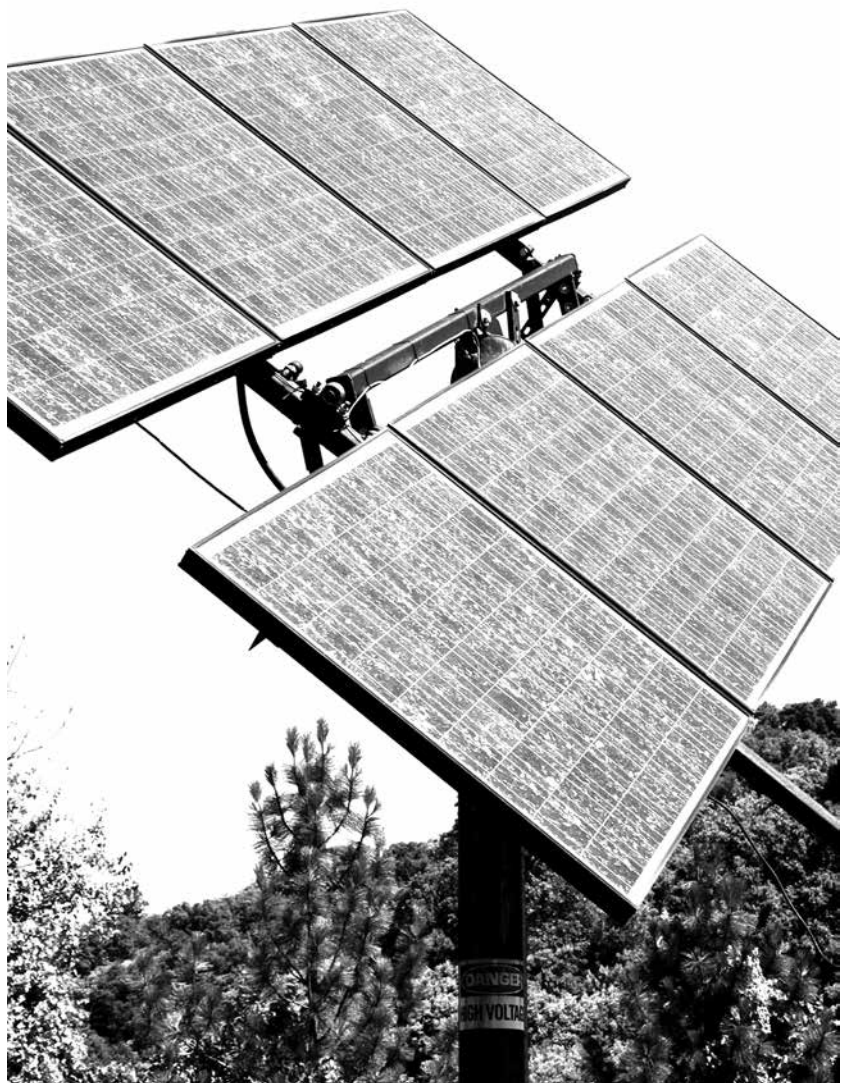
The Renewable Energy (Jobs and Investment) Act 2017 ('the Act') is the first piece of legislation enshrining RET into law in Victoria.

The Act is a big step forward. The existence of a 2025 target highlights that the Act is underpinned by long-term objectives, which leaves the door open for discussions about future targets. As such, one of the strengths of the Act is that it specifically aims at implementing the VRET. It does not consider it merely as a means to support other policies, as is the case in the ACT. The Victorian Act provides ambitious targets which will compel the Government to implement environmentally effective policies.

The existence of provisions for accountability is another reason why we should be satisfied by the Act. Firstly, it states that 'This Act binds the Crown'. This precludes immunity for State agents and public institutions. As such, they could be held responsible under the law for not implementing the Act. Secondly, the Minister has a duty to report annually to the Parliament on progress made to meet the targets and on the performance of schemes to achieve the targets. The Minister must also determine interim levels of renewable energy. This is an effective mechanism to contribute to the achievement of the targets.

What could be improved? The high targets set out by the ACT and California's energy laws exceed the ambition of the targets in the Victorian Act. Let us hope that higher targets will be introduced in Victoria.

Besides, one can be surprised by the Act's brevity. It contains few provisions and lacks precision, merely giving general policy orientation. Much of the implementation is left to the Executive. The government intends to implement the Renewable Energy Auction Scheme. Nevertheless, the absence of legislative constraints imposed on the government as to how achieve the targets is a great concern. The Act could have been more specific in determining how these targets are to be achieved by defining the strategies the Executive must rely on. For instance, the Minister for the Environment would have the power to declare



any source of energy to be a renewable source of energy for the purposes of the Act. For this reason, lower-house MP Ellen Sandell proposed during the debate an amendment to exclude burning of native forests for biomass in section 3 of the Act defining renewable energy sources.

Another major flaw of the 2017 Act is the absence of an anti-backsliding clause. The VRET is defined as a percentage of the overall electricity generated in Victoria. Therefore, a change in our electricity generation capacity, such as closing coal mines, would result in a decrease in the VRET. One way to avoid this is to define VRET as greenhouse emissions gas targets, as in the ACT. That is to say a percentage corresponding to a figure, for instance '25% of to 2017 electricity production level'. Or the Act could introduce a bottom level, such as '25% of electricity generated in Victoria, or no less than 920 MW' (which is 25% of Victoria's electricity generating capacity according to the *2017 Renewables Global Status Report*).

Conclusion

Although a few provisions could be improved, the Victorian Act is at the forefront of RET legislation. Both in Australia and in the US, states are leading on renewable energy while national governments are going backwards. That shows how states can lead climate action, driven by communities lobbying and campaigning for changes at local and state levels.

Luiza Riottot is a volunteer with Friends of the Earth Melbourne's Yes2Renewables campaign.

Strathbogie Voices: ideas incubator and community energy pivot point

Kate Auty

Strathbogie Voices, is a *very* loose amalgamation of community people in the north east of Victoria. We have a website (www.strathbogievoices.com.au), facebook page (www.facebook.com/StrathbogieVoices), twitter account (@BogieVoices), and You Tube channel.

Strathbogie Voices has no premises or model rules. It does not hold annual general or other meetings. The group draws on the energy of people from Euroa, Violet Town, Strathbogie. It aligns and collaborates with, and sometimes energises, people across the north-east of Victoria. For instance, the group swelled the numbers at the recent Albury Wodonga Anti-Adani protest with five carloads of people, some of whom came from Wagga Wagga.

The work done by Strathbogie Voices has promoted the development of the Strathbogie Seymour Energy Alliance which has been working on pumped hydro energy storage in Trawool and Strathbogie.

The group emerged when people who cared about biodiversity in the ranges and across a catchment met with others who were interested in local government delivering on sustainability and responding to climate change. Everyone, whatever their focus, wanted better access to decision-makers and sustainable outcomes.

Since 2014 various actions have illustrated the capacity of community to organise. Some of these were not, ostensibly, about the environment, but each was driven and managed by community members.

Victorian state government election candidates were invited to a town hall meeting to answer questions about politics and the environment. Three hundred locals attended to listen and discuss ideas. This meeting was preceded and followed by community roundtables across the Shire of Strathbogie which sought community views about regional issues. A report was compiled and this provided a rough guide for candidates who stood at the local government elections.

As we were organising this raft of activities an even broader community coalition ran a campaign against the installation of poker machines at a local pub. This involved council meetings, a VCAT hearing, trips to Melbourne, and finally the development of a poker machines policy. The community was successful. This success buoyed all of us. It was a three-year campaign. Four hundred people marched down the main street of Euroa with home-made floats, prams, dogs and lots of good humour, in spite of the high stakes.

Strathbogie Voices community activists have staying power. But ... we are basically community activists, we are embedded in the places we know. We have run highly successful cross-cultural twilight hawkers markets which have both been over-subscribed. And, we have sponsored the Euroa girls football club which now plays in the local competition.

Euroa Environment Series

Throughout 2015 we held 10 community forums which we called the Euroa Environment Series. They focused heavily on the rigorousness of the climate change science, the urgency of climate change adaptation and mitigation action, the role of local communities in driving change, and the power of sub-national and local governments in the absence of federal government commitment and action.

We asked 25 authoritative people (for example David Karoly, Rob Gell, Pip Carew, Janet Bolitho, Mike Hill, Aunty Rochelle Patten) to come and speak. No one said no, even though they all had to get to Euroa under their own steam to join us. Alan Pears and others came up by V Line train (a very unreliable service which meant a 6am start on a Saturday morning). We received \$5000 from Goulburn Broken Catchment Management Authority after the Series concluded which helped to repay some people. We used a small bequest to fund some videos which we have posted on You Tube and took to the UN COP21 climate conference in Paris. Otherwise we ran on community energy.

Strathbogie Voices and Sustainable Seymour embraced a call from the floor at one of these meetings. It was suggested we should strive to provide our towns with 100% renewable energy. That meeting produced a Committee of Forty and that Committee's work resulted in the creation of the Strathbogie Seymour Energy Alliance (SSEA). That in turn has produced the Mitchell Community Energy Inc association in Seymour, even as Strathbogie Voices remains a loose amalgam of community members. We don't all have to follow the same path.

The outcome of this meeting was that the SSEA submitted a proposal to the New Energy Jobs Fund for a Pumped Heat Electrical Storage (PHES) pre-feasibility study for two specific sites in our region.

This again was not the creation of singular people but rather the result of great community collaborations and organisation. Taryn Lane of Hepburn Wind gave us great advice about energy. Nathan Epp of Goulburn Valley Water

The group emerged when people who cared about biodiversity in the ranges and across a catchment met with others who were interested in local government delivering on sustainability and responding to climate change.

linked us to his organisation. We drew on the interests and expertise of our community – engineers, lawyers, teachers, scientists, business people, logistics experts, retirees, people in paid employment, farmers, artists, and others. We talked to others – Newstead community, those interested in 100% renewable Yackandandah, sustainability groups from Benalla and Wodonga, Friends of the Earth's Yes2Renewables campaign, and more. We caucused and we built, we organised. The proposal was mooted at many community activities, including at the Swanpool Environmental Film Festival and celebrations of the work of Hepburn Wind.

Old maps were located; reports were sourced; locals with historical and contemporary knowledge were drawn into the conversation; field trips were organised; the Strathbogie Voices web presence, video representations, and social media continued to promote the initiative.

Links were made with the Australian National University and the University of Melbourne. Experts from both universities were generous with their time and both had expertise in PHES. ARENA – the Australian Renewable Energy Agency – was supporting the work being done by experts at both universities. We could live in hope! We drafted the grant proposal. It took a lot of doing. It was complex, it went through multiple iterations.

PHES expert Dr Roger Dargaville of the Melbourne Energy Institute at the University of Melbourne, joined us for meetings at the university and in the field. Engineering consultants were briefed to undertake the ancillary research and modelling and produce the report.

Speaking for Strathbogie Voices – we own nothing. Our community's interest in this work is ambitious and it is idealistic. We want to do something about the energy issues we face and the climate change challenges which confront us. Our country is vulnerable. Our communities are at risk. We have responsibilities.

The water boards manage the water assets which include a decommissioned dam at Trawool east of Seymour, and east of Euroa, the Mountain Hutt and Waterhouse dams and the large, shallow and low-lying Abinga dam. Our interest does not mirror that of the water boards but they have to reduce their environmental footprint and their carbon emissions, and these PHES projects offer them the opportunity of finding a way to do so. Government unknowingly (initially) partnered with our community in this. The leadership of a government with ambitions about climate change issues is important (if not central) to the work our community has been doing.

The energy providers, not the community, also own the assets. Ausnet is the relevant energy service provider in the region but again there is alignment. Euroa is on the 'edge of the grid' which finally makes it attractive as a producer, not a consumer, of energy. The diesel generators acting as backup power in heatwave conditions could be pensioned off. Seymour is proximate to the Cherry Tree Hill wind farm which is under construction and owned by another energy innovator.

As a community we embarked on a community energy program because we wanted to promote renewable energy. A deep frustration about a lack of federal action, ideological obstruction, and the need for urgent climate change action, inspired people to come together and look for innovative opportunities. Our geographies, our proximity to river systems and water storages, our ability to explore a range of links and connections with corporations and universities, and the depth of community feeling drove us to act and collaborate.

The Euroa Environment Series provided the crucible for this enthusiasm but the community itself provided the energy.

Our theory of change is – start where you are, organise, show what you did. That is what we did. None of this is simple but it certainly is real.

Members of Strathbogie Voices meeting with people in Seymour.



Renewable energy news

The geopolitics of renewable energy

A new paper jointly published by Columbia University, Harvard University and the Norwegian Institute of International Affairs explores the geopolitical consequences of a large-scale transition to renewables.¹ Following an overview of six renewable energy scenarios for the coming decades, the paper outlines seven mechanisms through which renewable energy technologies could shape international politics:

- Critical material supply chains: As the transition to renewable energy proceeds, cartels could develop around materials critical to renewable energy technologies including rare earth elements, lithium, cobalt and indium.
- Electric grids: Renewable energy technologies will reshape electric grids, with complex implications for relations among states.
- Reduced oil and gas demand: Could weaken former major exporters and strengthen former major importers.
- New resource curse: The resource curse could become less of a factor in oil and gas exporting nations and more important in countries exporting materials critical for renewable energy technologies.
- Avoided climate change: By reducing emissions of heat-trapping gases, renewable energy technologies can reduce the risk of conflict and instability stemming from climate change.
- Energy access: Renewable energy technologies can help provide access to modern energy services to those who now lack it, reducing poverty and associated risks of instability.
- Technology and finance: The ability to exploit renewable energy depends critically on access to technology and finance, giving potential advantages to countries with strong innovation cultures and access to capital.

A sharp rise in renewable energy projects around the world over the last decade has been accompanied by an increase in human rights abuses perpetrated by renewables companies and their affiliates, a report by a UK-based non-profit group has alleged.² The study, by Business & Human Rights Resource Centre, documents how renewables firms, particularly in developing countries, are failing to meet international standards for engaging with the local communities where mainly wind and hydropower projects are being implemented. The report highlights cases of illegal land-grabbing, intimidation and violence, while the large majority of those featured in the research admitted to failing to meet basic rules of engagement around free, prior and informed consent.

1. Meghan O'Sullivan, Indra Overland, and David Sandalow, June 2017, 'The geopolitics of renewable energy', www.academia.edu/33681452/The_Geopolitics_of_Renewable_Energy

2. Business & Human Rights Resource Centre, 3 November 2016, '50 renewable energy companies' human rights policies & records examined', <https://business-humanrights.org/en/press-release-50-renewable-energy-companies%E2%80%99-human-rights-policies-records-examined>

Rapid renewable growth, nuclear going backwards

The International Energy Agency (IEA) has released a five-year global forecast for renewables, predicting capacity growth of 43% (920 gigawatts) by 2022.¹ The latest forecast is a "significant upwards revision" from last year's forecast, the IEA states, largely driven by expected solar power growth in China and India. The IEA forecasts that the share of renewables in global power generation will reach 30% in 2022, up from 24% in 2016.

The International Atomic Energy Agency (IAEA) has released the 2017 edition of its *International Status and Prospects for Nuclear Power* report series.² It states that the share of nuclear power in total global electricity generation has decreased for 10 years in a row, to under 11% in 2015, yet "this still corresponds to nearly a third of the world's low carbon electricity production." In other words, renewables (24.5%³) generate more than twice as much electricity as nuclear power (10.5%⁴) and the gap is growing rapidly.

Five years from now, renewables (~30%) will likely be generating three times as much electricity as nuclear reactors (~10%). Non-hydro renewable electricity generation has grown eight-fold over the past decade and will probably surpass nuclear by 2022, or shortly thereafter, then leave nuclear power in its wake as renewables expand and the ageing nuclear fleet atrophies.⁵

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3. www.ren21.net/wp-content/uploads/2017/06/17-8399_GSR_2017_Full_Report_0621_Opt.pdf

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Rooftop solar is saving billions in Australia

A major new study has underlined the crucial role played by rooftop solar in moderating energy prices: without it, the study says, the aggregate cost of electricity would have been several billion dollars higher over the past year in Australia. The study by Energy Synapse, commissioned by the community lobby group Solar Citizens, reinforces previous estimates of the broad benefits of the more than 6 gigawatts of rooftop solar installed on more than 1.7 million household and business rooftops.

That capacity is often demonised by vested interests as "free-loading" on the network and other consumers, but the study proves otherwise. It notes that in NSW alone the savings from rooftop solar - by reducing demand at crucial times and challenging the dominance of the big generators in the wholesale market - were between \$2.3 billion and \$3.3 billion in the 12 months to April, 2017.

"Anything that is in the world when you're born is normal and ordinary and is just a natural part of the way the world works. Anything that's invented between when you're fifteen and thirty-five is new and exciting and revolutionary and you can probably get a career in it. Anything invented after you're thirty-five is against the natural order of things."

That's how much the wholesale price is lowered from what they would have been if rooftop solar was not present in the market. Even though rooftop solar only provides 2% of total generation, the study found it clipped prices by \$29-44/MWh – up to 50% higher than the actual price.

That stands to reason. Major generators have long complained about how solar is "clipping their margins", and networks have also underscored the other major finding of the Energy Synapse study by pointing out that rooftop solar is narrowing and lowering the periods of peak demand.

Energy Synapse's analysis shows that rooftop solar mitigates prices because of the "merit order effect" – by creating electricity at zero marginal cost, it moves the "bidding stack" to the left and lowers prices. Anyone doubting the ability of small amounts of demand can influence prices need only look at the Australian Energy Regulator reports which highlights how the big generators game the markets, pushing "availability" down just one MW below requirements so only high prices capacity comes into the market.

Abridged from:

Giles Parkinson, 16 October 2017, 'How rooftop solar is saving billions on energy bills for all consumers', <http://reneweconomy.com.au/how-rooftop-solar-is-saving-billions-on-energy-bills-for-all-consumers-56676/>

Explaining hostility to renewables

Marc Hudson writes in *The Conversation*:

My recently published paper, titled "Wind beneath their contempt: why Australian policymakers oppose solar and wind energy" outlines the hostility to renewables from people like former treasurer Joe Hockey, who found the wind turbines around Canberra's Lake George "utterly offensive", and former prime minister Tony Abbott, who funded studies into the "potential health impacts" of wind farms.

It also deals with the policy-go-round that led to a drop in investment in renewables.

In a search for explanations for this, my paper looks at what we academics call "material factors", such as party donations, post-career jobs, blame avoidance, diminished government capacity to act, and active disinformation by incumbents.

I then turn to ideological factors such as neoliberalism, the "growth at all costs" mindset, and of course climate denial. Where it gets fun – and possibly controversial – is when I turn to psychological explanations such as what the

sociologist Karl Mannheim called "the problem of generations". This is best explained by a Douglas Adams quote: "Anything that is in the world when you're born is normal and ordinary and is just a natural part of the way the world works. Anything that's invented between when you're fifteen and thirty-five is new and exciting and revolutionary and you can probably get a career in it. Anything invented after you're thirty-five is against the natural order of things."

Over the past 50 years, white heterosexual middle-class males with engineering backgrounds have felt this pattern particularly keenly, as their world has shifted and changed around them. ... The rising popularity of solar panels represents a similar pattern of democratisation, and associated loss of control for those with a vested interest in conventional power generation, which would presumably be particularly threatening to those attracted to status, power and hierarchy.

The full article is online:

Marc Hudson, 29 May 2017, 'Who tilts at windmills? Explaining hostility to renewables', <https://theconversation.com/who-tilts-at-windmills-explaining-hostility-to-renewables-77762>

See also:

*Marc Hudson, 'Wind beneath their contempt: Why Australian policymakers oppose solar and wind energy', *Energy Research & Social Science*, Volume 28, June 2017, pp.11-16, www.sciencedirect.com/science/article/pii/S2214629617300877*

Eliminating energy-related carbon emissions possible, IRENA study finds

Global energy-related carbon dioxide (CO₂) emissions can be reduced by 70% by 2050 and completely phased-out by 2060 with a net positive economic outlook, according to a report released by the International Renewable Energy Agency (IRENA) earlier this year.

IRENA's report, 'Perspectives for the Energy Transition: Investment Needs for a Low-Carbon Energy Transition', argues that increased deployment of renewable energy and energy efficiency in G20 countries and globally can achieve the emissions reductions needed to keep global temperature rise to no more than two-degrees Celsius, avoiding the most severe impacts of climate change.

While overall the energy investment needed for decarbonising the energy sector is substantial – an additional US\$29 trillion until 2050 – it amounts to a small share (0.4%) of global GDP. Furthermore, IRENA's macroeconomic analysis suggests that such investment creates a stimulus that, together with other pro-growth policies, will: boost global GDP by 0.8% in 2050; generate new jobs in the renewable energy sector that would more than offset job losses in the fossil fuel industry, with further jobs being created by energy efficiency activities, and; improve human welfare through important additional environmental and health benefits thanks to reduced air pollution. Renewable energy now accounts for 24% of global power generation and 16% of primary energy supply. To achieve decarbonisation, the report states that, by 2050, renewables should be 80% of power generation and 65% of total primary energy supply.

The full report can be downloaded at www.irena.org/publications/2017/Mar/Perspectives-for-the-energy-transition-Investment-needs-for-a-low-carbon-energy-system

A year since the SA blackout, who's winning the high-wattage power play?

Marc Hudson

28 September 2017 – It's a year to the day since the entire state of South Australia was plunged into darkness. And what a year it's been, for energy policy geeks and political tragics alike.

Parked at the western end of the eastern states' electricity grid, South Australia has long been an outlier, in energy policy as well as geography. Over the past decade it has had a tempestuous relationship with the federal government, be it Labor or Coalition. As with water policy, the South Australians often suspect they are being left high and dry by their upstream neighbours.

The policy chaos over the carbon price left the Renewable Energy Target as a far more prominent investment signal than it would otherwise have been. South Australia carried on attracting wind farms, which earned more than their fair share of the blame for high electricity prices.

On September 28, 2016, a "once-in-50-year storm" blew over a string of electricity pylons, tripping the whole state's power grid. While the blackout, which lasted 5 hours in Adelaide and longer elsewhere, was still unfolding, critics of renewables took a leap into the dark as part of a wider blame game.

Despite being described as a "confected conflict", the skirmish was serious enough to prompt the federal government to commission Chief Scientist Alan Finkel's landmark review of the entire National Electricity Market, with a deadline of mid-2017.

Meanwhile, in early December, federal environment minister Josh Frydenberg was forced to backtrack after saying the Coalition was prepared to consider an emissions intensity scheme. SA Premier Jay Weatherill was unamused by the flip-flop and threatened to get together with other states to go it alone on carbon pricing.

February saw a series of "load shedding" events during a heatwave, which left some Adelaide homes once more without power and saw the grid wobble in NSW too. (It should be noted that the now infamous Liddell power station was unable to increase its output during the incident.)

Policy by tweet

It was then that Twitter entered the fray. The "accidental billionaire" Mike Cannon-Brookes was asking Solar City chief executive

Lyndon Rive how quickly a battery storage system might be up and running. Rive's cousin, a certain Elon Musk, intervened with his famous offer: "Tesla will get the system installed and working 100 days from contract signature or it is free. That serious enough for you?"

Within days, both Weatherill and Turnbull had had conversations with Musk, and Turnbull announced a "Snowy Hydro 2.0" storage proposal.

Meanwhile, Weatherill unveiled his SA Energy Plan, which the Guardian called a "survivalist fix of last resort". We now know that the plan cost A\$1 million to produce.

Then, on March 16, at the launch of a 5-megawatt "virtual power plant" in Adelaide, Weatherill had some choice words for Frydenberg who, entertainingly enough, was standing right next to him: "I've got to say, it is a little galling to be standing here, next to a man that's been standing up with his prime minister, bagging South Australia at every step of the way over the last six months... And for you to then turn around, in a few short months, when there's a blackout, and point the finger at SA for the fact that our leadership in renewable energy was the cause of that problem is an absolute disgrace."

Frydenberg kept a notably low profile for a while after this.

Finkel fires up

In June, Finkel released his keenly awaited review. A significant number of Liberals and Nationals didn't like his suggested Clean Energy Target, and immediately set about trying to insert coal into it.

Despite being conceived as an acceptable compromise, the Clean Energy Target was bashed from both sides. It was criticised as too weak to reach Australia's emissions target and little more than "business as usual", but was also "unconscionable" to former Prime Minister Tony Abbott.

Weatherill's next major stand-alongside was an even bigger deal than the Frydenberg stoush. On July 7, he and Musk announced that part of his earlier energy SA plan would become reality: a 129-megawatt-hour lithium-ion battery farm, to be built alongside a wind farm in Jamestown.

Speaking at a book launch, Weatherill used the f-word to describe specific media opponents of renewables, earning himself opprobrium in the pages of *The Australian*, and admiration in more progressive areas of social media.

Federal treasurer Scott Morrison returned fire, deriding the battery farm as "a Big Banana".

However, there was another big announcement in Weatherill's locker: a A\$650-million concentrated solar thermal power plant to be built near Port Augusta, with potential for more.

Quietly, the "energy security target" component of the SA plan, which had been rubbished, was deferred, while a renewables-based "minigrid" on the Yorke peninsula was announced.

Whatever next?

What will happen now? "Events, dear boy, events," as Harold MacMillan didn't say. Musk is back in Adelaide to talk about his Mars mission, with an appearance scheduled for Jamestown. Would anyone bet against another SA government announcement? More batteries? Electric cars? Space planes...?

The Jamestown battery should come online in December (or it's free!). Weatherill will presumably be hoping that Turnbull's government staggers on, bleeding credibility and beefing up the anti-Liberal protest vote until the March 2018 state election, and that they continue to make themselves look like a rabble over Finkel's Clean Energy Target.

At the same time, he will also fervently hope there isn't another big power crisis, and that the A\$2.6 million of public money he spent making sure everyone knows about his energy plans provides effective insulation from any shocks.

The whole saga shows how policy windows can open up in unexpected ways. An attempt to blast a new technology fails, and a politician at state level sees no option but to act because of federal inadequacy. It's happening in California too.

Judging by his interviews with me and the Guardian's Katharine Murphy, Weatherill has found his signature issue – making lemonade from the huge lemon he was served last September. As another commentator wrote: “Far from being the last nail in the Weatherill government's electoral coffin, the power crisis has perversely breathed new life into Labor's re-election hopes... It is turning its own failures on energy security into a single-issue platform on which to campaign.”

Weatherill is trying to build an innovation ecosystem for clean energy technology. Announcing a tender last month, Weatherill said his government is “looking for the next generation of renewable technologies and demand-management technologies to maintain our global leadership”. And when do applications for that tender close? Well, it may be a coincidence, but the deadline is 5pm today – exactly a year since his state's darkest hour.

A referenced version of this article was published in The Conversation: Marc Hudson, 28 September 2017, 'A year since the SA blackout, who's winning the high-wattage power play?', <https://theconversation.com/a-year-since-the-sa-blackout-ubos-winning-the-high-wattage-power-play-84416>

The 'SA energy crisis' is a myth peddled by liars

Ronald Brakels

If you repeat a message long and loud enough many people will accept it as true. In early April I wrote that South Australia's electricity grid was in disarray. I warned that more blackouts were inevitable as soon as summer rolled around again or adverse weather struck. With my warning I wanted to give people a sense of perilous urgency on the need to do something about the dilapidated state of the grid that we depend upon for our jobs, our well-being, and civilization itself.

But that was on April Fools Day. I wasn't serious.

There is nothing wrong with South Australia's grid. Not physically, at least. To be precise, there is nothing materially more wrong with it than normal. Despite what you may have heard, the fact that over half the electricity generated in the state now comes from wind power and rooftop solar has not reduced the grid's reliability.

The SA grid is just as capable of meeting supply as it was last year, 5 years ago, or 10 years ago when the state had almost no renewable generating capacity. But despite this, there are many people think SA's grid is crumbling faster than a biscuit umbrella in a tsunami.

But it is now widely accepted that three separate blackouts in SA last summer were due to:

- Bad luck. Destructive storms caused a state-wide blackout in September 2016 and localized blackouts in December 2016.

- Incompetent management: power companies not turning on idle generating capacity in the middle of a heatwave.
- A fault in Victoria causing the Heywood interconnector to fail.

These events should have prompted a discussion on whether we need to make the grid more storm resistant; and an announcement by the state government, fully supported by the federal government, on how they are changing the way electricity is sourced from generators. Because that's why we have government. To make things work better. It's not just for its entertainment value.

But we didn't get that. Instead we got a chorus of harpies consisting of Coalition politicians backed by incumbent generators and fossil fuel interests who insist every problem is the fault of renewables and that the SA grid is going to pieces so fast people are being hit by the shrapnel.

Ronald Brakels' detailed analysis goes on to discuss the following issues and questions:

- *The AEMO says SA's grid can meet demand*
- *If the grid can meet demand, why hasn't it?*
- *A properly designed grid breaks down every now and then*
- *Did wind power blackout South Australia?*
- *Should SA's grid be made more storm resistant?*
- *Feb. 2017 heatwave blackout caused by not turning on idle generators*
- *Power companies game the system to raise electricity prices*
- *Rooftop solar improves energy security and reduces blackouts*
- *The state government's new gas generator isn't required*
- *We can't improve reality until we recognise reality*

Ronald Brakels, 26 April 2017, 'The 'SA energy crisis' is a myth peddled by liars', www.solarquotes.com.au/blog/sa-energy-crisis-myth-peddled-liars/

Locals initiate climate solutions in Melbourne's inner north

Claudia Gallois

Climate change is affecting people in Melbourne by putting pressure on public health, the local environment, infrastructure, and the economy. Yarra Community Solar and the Epworth Hospital have initiated sustainable projects in the inner north to create change in their communities.

Climate change is causing more heatwaves in Melbourne, which in recent years have disrupted the railway system and the electricity grid.¹ On days where the temperature is forecast to reach 42 degrees Celsius and above, the maximum speed limit is reduced to 70 km/hr across the entire Metro network and train services are often delayed or cancelled. Extreme weather events in Melbourne will see an increase in road rutting and cracking and bridge expansion joint cracking which will increase costs of public infrastructure maintenance.²

Melbourne's public health system is also under pressure from extreme weather events. During the January 2014 heatwave in Victoria, there were 203 heat-related deaths and a 20-fold increase in ambulance call-outs.¹ Over the past 100 years, heatwaves have caused more deaths than any other natural hazard in Australia.¹

Climate change is causing more severe storms and flooding, which can contribute to the growth of mould in homes and have a negative impact on people's health.³ Floods absorb public budgets through demands on emergency services and put a strain on volunteer services like the SES. They also lead to greater insurance claims, which result in higher premiums and financial hardship for affected people.

Hot days have doubled in Australia in the past 50 years. In Australia, 1-in-20 year extreme hot days are expected to occur every two to five years by 2050.¹

Global warming is causing more bushfires, floods, severe storms, and heat waves. These extreme weather events are damaging public and private property and more money has to be spent on services such as ambulance, fire, hospitals, and insurance companies, which puts a strain on the economy. It is estimated that between 2003 and 2013, natural disasters in Victoria cost almost \$20 billion.⁴

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7. <http://ycan.org.au/campaigns/yarra-community-solar>

The key climate change related risks for the environment in the inner north are a decrease in rainfall, an increase in hot days, an increase in floods, and an increase in extreme acute weather events. According to Climate Change in Australia, the potential impacts are an amplification of existing threats to flora and fauna, changes to habitat, and changing dynamics of invasive ecosystems.⁵ The Merri Creek Management Committee says that climate change poses a threat to the management of river health and flood protection.⁶ The future of the Merri Catchment is uncertain.

With heatwaves and bushfires putting pressure on hospitals, ambulances, and the CFA, floods damaging infrastructure, and season changes affecting local ecosystems, climate change is no longer an abstract concept for Melbournians and people in the inner north have responded by creating change in their area.

Community initiatives

Rebecca Pascoe, a registered nurse who works in the surgical ward at the Epworth Hospital, initiated a project to make the hospital more sustainable. "We are working on reducing our landfill by reducing our use of stock where possible and appropriate, reusing items where possible, and recycling," she said. Because of this initiative, the Epworth Hospital was nominated as a finalist for the Victorian Premier's Sustainability Awards.

Yarra Community Solar (YCS) is creating a community-owned solar power station. The group is looking to install about 400 solar panels on the roof of a local building. Locals will help fund the project and will receive an annual return.⁷ The aim is to enable people, such as renters, who can't install solar panels on their own roofs to benefit from solar power.

YCS volunteer Les Pradd said that the Victorian state government has supported the group through issuing a Guide to Community Owned Renewable Energy in Victoria and freeing up energy regulation to allow organisations to sell energy; and through the Renewable Energy Jobs Fund, which provided Moreland Energy Foundation Limited with a grant to help community solar organisations establish themselves.

YCS is now waiting for a response from the government regarding recommendations they suggested through the Inquiry into Community Energy Projects in Victoria. The group has recommended that the government provide a community feed-in tariff, support local energy trading (also called peer-to-peer trading or virtual net metering), use government roofs for investment projects, implement community powerhouse recommendations, and address split incentives for landlords and tenants.

Claudia Gallois is a member of Friends of the Earth Melbourne.

My coal childhood – lessons for Australia from Germany's mine pit lakes

Anica Niepraschk

I grew up one kilometre from the edge of a brown coal mine and surrounded by many others. I remember staring in awe and fear at this massive hole, scared of getting too close after hearing stories of people buried alive because they walked along the unstable mine walls.

My family lives in the Lausitz region of Germany, once home to 30 brown coal mines. Situated between Berlin and Dresden, the region has been shaped by this industry for over 100 years. It was the German Democratic Republic's energy powerhouse – its Latrobe Valley – with coal mining the largest source of jobs.

That changed with Germany's reunification, when the economy restructured and most of the mines were closed. The only major industry was gone, leaving the countryside punctured with massive holes, and the community with big questions about how to make the region viable again.

The Latrobe Valley in Victoria is starting to face similar changes. Hazelwood power station and mine shut down a few months ago and the world is moving away from fossil fuels. People are

asking the same questions we did in Germany 15 years ago: how do we transition to a more diverse and sustainable economy, while continuing to provide jobs for local workers? What do we do with the dangerous pits left behind?

The same solutions are put forward too. Engie, the owner of Hazelwood, is proposing to fill all or part of the mine pit to become a lake and recreation area. The inspiration comes from the Lausitz, but some of the key challenges of this solution seem not to be given enough attention.

In my early teens, as I watched these massive mines around our house fill with water, I got excited about the prospect of living in an area renamed 'Neuseenland', meaning the land of new lakes. But while I was able to enjoy summer days swimming in some of these flooded mines, the process of filling them with water has been very slow. Many have already been filling up for 10 or 20 years, and are still a long way from being safe.

This is in a region of Germany with plenty of water. The huge pits could be filled with combinations of diverted waterways,

The only major industry was gone, leaving the countryside punctured with massive holes, and the community with big questions about how to make the region viable again.



groundwater access, rainfall and large amounts of reprocessed mining water, transferred from other nearby operating mines.

These water sources are not available to the same extent in the Latrobe Valley. To give a sense of scale, it would take more water than is in all of Sydney Harbour just to fill one of the brown coal mines. Where will all this come from? What are the downstream impacts of taking this much water? Would a lake be safe for the public to use? The Hazelwood inquiry into mine rehabilitation identified these looming challenges, and the Victorian government has created a rehabilitation commissioner and an advisory committee to start finding answers, but right now we just don't know.

Then there's the environmental contamination. In the Lausitz, mining had already polluted the waterways with high amounts of iron hydroxides, calcium and sulphates. Flooding the mine pits spread this pollution even further, degrading local ecosystems. Increasingly salty waterways now threaten drinking water supplies to Berlin and surrounds and make water management more expensive. Mining companies are the biggest users of water but don't even have to pay for it. For local communities, other major consequences include rising groundwater flooding basements, cracking building structures and shifting the ground.

Landslides are a real worry. In the Lausitz in 2009, a 350-metre wide strip of land – including buildings, a road and a viewing platform – slid into the adjacent pit lake, burying three people. In 2010, in an area where the former mine surrounding was regarded as very stable and settled, 27 hectares of forests sank into the earth. This will come as no surprise to people of the Latrobe Valley, where the Princes Highway was closed for eight months in 2011 due to landslides related to the adjacent Hazelwood mine.

There have been many more such incidents in the Lausitz, and the risk prevents whole areas from being accessed, which were used for farmland, wind farms, industry or forests. Yet when the Lausitz is promoted as the poster child of mine rehabilitation through flooding, many of these challenges aren't mentioned.

Community consultations on the future of the Hazelwood began in September. So far, the community has expressed many ideas other than filling the mine pit with water but these remain ignored. Engie is unwilling to release the full list of rehabilitation concepts they considered before settling on the pit lake solution. This makes it difficult for the community to understand the recommendation and weigh it up against alternatives.

Before more planning proceeds on the assumption that a pit lake is the only option, the lessons learned from the experience in the Lausitz should be aired and discussed in the Latrobe Valley. It's important to avoid the potential negative consequences of flooding mine pits as best as possible from the beginning, and to make sure the mine owners pay for the precious water they are taking, like everybody else does.

Most of all, the community needs to have a bigger say in what happens to retired mine pits. Like me, the children of Morwell, Moe and Traralgon in Victoria will grow up surrounded by massive, dangerous holes in the ground. Their families have the most at stake in what happens, so they should have the loudest voice in shaping the region's future, not the corporate mine owners who shaped its past.

Anica Niepraschk is a climate campaigner at Environment Victoria.

Reprinted from The Ecologist, 2 August 2017, www.theecologist.org/blogs_and_comments/Blogs/2989166/my_coal_childhood_lessons_for_australia_from_germanys_mine_pit_lakes.html

In 2010, in an area where the former mine surrounding was regarded as very stable and settled, 27 hectares of forests sank into the earth.

The Victorian coal policy: Heavy on the brown stuff, light on detail

Catherine Hearse

The Victorian Coal Policy: Statement on future uses of brown coal is a nebulous document that satisfies neither climate change campaigner nor fossil fuel advocate.¹ Underlying the vague exterior is the insidious proposition that we can safely transform our dirty brown coal into clean alternatives while satisfying our commitments to reduce greenhouse gas emissions.

Alarming, these proposed so-called clean alternatives include converting brown coal to hydrogen to be sold to Japan for motor vehicle

fuel. This process is very emissions intensive and can only succeed if we figure out how to use Carbon Capture and Storage (CCS), a failed technology that is inefficient, expensive, toxic and unproven. Billions have been spent on projects worldwide with 38 current large-scale CCS projects dotted around the globe according to the Global CCS Institute. But the majority are pilot projects. The technology has a long history of struggling to get off the ground, and many question how 'clean' it actually is in terms of reducing emissions from fossil fuel power plants.²

The chemical compounds used in the carbon absorption process may be dangerous to humans, and once they are released they can degrade into other highly toxic compounds. The degraded compounds include nitrosamines, which are considered one of the most potent carcinogens in tobacco smoke. There are risks of mutations, birth defects and cancer in humans as well as risks to soil, plants and ecosystems. Researchers lack deep knowledge as to how these compounds will react when released in the ways and in the amounts associated with large-scale CO₂ capture plants.³

We also know that CCS uses 16% more coal to produce the same energy output as a coal burning generator without CCS, and produces a 16% increase in pollutants such as sulphur dioxide, nitrogen oxides and particulate matter. These pollutants are under-regulated in Victoria and are a major cause of ill health and deaths.⁴

The policy's continued financial support for the CarbonNet Project, which is investigating the development of a CCS network in Victoria, diverts money that could be spent on renewable technology and potentially exposes Victorians to an additional cocktail of toxic chemicals that may affect human health and ecosystems, as well as increasing extant toxic chemical emissions from coal burning power stations. CCS is not guaranteed to succeed and the prospect of any leakage of CO₂ is not worth the risk to climate.

The proposed "emissions standard for new brown coal projects by regulation under the Environment Protection Act" will not apply to extant brown coal generators. Continuation of emissions at the current rate by existing generators will ensure that we do not meet greenhouse gas emissions reduction targets. Health impacts will also remain severe as a direct result of toxic emissions. New brown coal projects will increase emissions, if they go ahead, as they are dependent on failed CCS to meet new standards. They will also increase toxic pollutants. It is surely unconscionable to consider any new brown coal projects while dealing with the threat of climate change.

The Victorian Coal Policy claims that the new coal projects "could provide new economic development and trade opportunities, bringing high-skilled jobs and investment to the Latrobe Valley and Gippsland." It does not consider the health impacts on the local community, a startling omission given that 95% of air pollution in the Latrobe Valley in Victoria is from burning coal. Environmental Justice Australia's report 'Toxic and Terminal' details the profound health effects of burning coal in Australia, especially for those living in areas close to power stations such as in Gippsland and the Latrobe Valley.

The proposition of a 16% increase in these toxic emissions through CCS is unconscionable.

A plan for the future of the Valley and Gippsland must take the health of residents into consideration and use technology that is more than a pipedream. There are many ideas for the development of renewable technologies that provide residents with healthy alternatives and greater employment opportunities.⁵ Let's have a coal policy that commits to phasing out coal in a way that supports the essential and increasingly urgent need to transform our energy infrastructure.

The policy's 'open for business' approach to investment and research in coal projects undermines development of renewable energy technologies and discourages transition. Allowing finance to flow into development of CCS and brown coal rather than wind, solar and pumped hydro, slows economic development of renewables and may adversely affect the state's economy. While many national and state economies are supporting the transition to renewable energy, Victoria would gain advantage through a focus on the development of new technology.

As Ross Garnaut says: "Play our cards right, and Australia's exceptionally rich endowment per person in renewable energy resources makes us a low-cost location for energy supply in a low-carbon world economy. That would make us the economically rational location within the developed world of a high proportion of energy-intensive processing and manufacturing activity."⁶

The Victorian government's statement focuses on future uses of brown coal and makes no mention of retiring existing coal generators apart from one vague reference. The Victorian economy could benefit from some assurances on the phase-out of brown coal generation, encouraging investment in renewables and healthier futures for residents of coal producing areas. Some of the solutions to the phase out problem may be answered in the government's Climate Change Act, the Renewable Energy Target and, possibly, the Rehabilitation Bond Policy for the Latrobe Valley Coal Mines - but they are not mentioned in the coal policy document.

Focusing on proposed technologies that are unproven, serious greenhouse gas emitters and heavy polluters, avoids the question of just, controlled and manageable transition from old brown coal to renewables. Victoria needs timelines and certainty.

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<http://quitcoal.org.au>*

It is surely unconscionable to consider any new brown coal projects while dealing with the threat of climate change.

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Climate action in Victoria

In terms of Victoria's efforts to tackle climate change, the month of November 2017 represents a milestone. In an event organised by Friends of the Earth Melbourne, over 100 community members gathered on the steps of Parliament House on November 1 to celebrate the commencement of the strengthened Climate Change Act and to call for more action. And on November 2, Friends of the Earth kicked off the conversation about 'what next' for climate policy, making the case for a climate budget in the Parliament at an event attended by Lily D'Ambrosio, Victorian minister for energy, environment and climate change.

Leigh Ewbank, coordinator of Friends of the Earth Melbourne's Act on Climate campaign, delivered the following speech in the Victorian Parliament:

It's a pleasure to be here today to acknowledge progress on climate change and consider what's next for our state. When the history is written about Victoria's efforts to tackle climate change, I believe 2017 will be seen as a turning point.

In response to a community campaign that engaged tens of thousands of people across regional Victoria, the Andrews government legislated a permanent ban on unconventional gas.

After a decade of campaigning by environmental groups and the community, the French company Engie closed the Hazelwood coal power plant.

A little over a fortnight ago, we saw ambitious Victorian Renewable Energy Targets enshrined in law.

And yesterday, over 100 community members gathered on the steps of this Parliament to celebrate the commencement of the strengthened Climate Change Act.

Thanks to the efforts of many people in this room, Victoria's climate laws have been rebuilt.

The achievements of 2017 symbolise the end of a successful chapter. Yet the extent to which 2017 is a turning point depends on what comes next. So let's turn the page and make further progress.

Despite alarming melting of the polar icecaps, unprecedented bleaching of the Great Barrier Reef, and parts of Victoria experiencing the driest June on record, the federal government has turned its back on climate change. The Turnbull government's energy policy would incentivise coal and gas power and extend the life of the Liddell coal plant. The fact that federal treasurer Scott Morrison didn't even mention climate change in his Budget address shows the depth of denial in the Coalition.

While it's convenient for the federal Coalition to ignore the problem, their inaction leaves Victorian communities exposed to climate change impacts such as increasing heatwaves, droughts, bushfires, and storms. These events are set to get worse and will hit the elderly and the poor hardest.

I've spent a lot of time on the road this year, meeting with people in regional communities. When asked about climate change, community members have told me "the seasons are changing." They are aware of climate impacts and have an appetite for what are often very creative solutions.

In response to a community campaign that engaged tens of thousands of people across regional Victoria, the Andrews government legislated a permanent ban on unconventional gas.

Rally at Victoria's Parliament House on November 1



In Donald, people are concerned about extreme weather events such as heatwaves and dry spells that can result in crop failure. Work is currently underway on a levy to protect vulnerable parts of town from flooding. On the other hand, one local entrepreneur is trying to build a solar-powered data farm.

In the town of Tarnagulla, community members are concerned about increased bushfires – an issue compounded by the fact the CFA has shrunk from 45 people to just 10. Yet a town hall meeting organised by locals has built consensus around the need for a solar-powered refuge for the community in extreme events. The stories I've heard reinforce the point that there's no 'one-size-fits-all' solution to climate change. Each town, district, and community faces its own challenges and has its own vision for how to respond.

The thing that unites them, though, is the need for state government support. And that's why Friends of the Earth are building the case for the Andrews government to deliver Victoria's first climate change-focused state budget.

With global warming accelerating, the policy outcomes of 2017 must be seen as foundation stones upon which the Andrews government can continue climate leadership. The Victorian budget is the logical next step.

The budget process has evolved over decades to adapt to new challenges. Victorian Labor has an opportunity to bring it into the 21st century to account or climate change – an issue that will have budgetary implications for decades to come.

The most obvious way for the government to show leadership in the budget is to increase the level of investment. After all, an ounce of prevention is worth a pound of cure.

Previous budgets from the Andrews government have delivered on many fronts, particularly for family violence. Yet when it comes to expenditure on climate change, Victoria is coming off a low base. Investment in climate action will have to be ramped up significantly to put Victoria on a trajectory to meet legislated targets.

A climate-focused state budget has the potential to bring diverse stakeholders together around solutions. Road infrastructure, schools, and workplaces all face their own impacts. The government's Climate Change Innovation Partnerships Grant Scheme has shown on a small scale what's possible. Testament to the ability for unusual bedfellows to collaborate, Friends of the Earth are currently working with the East Grampians Health Service and Northmore Gordon on a joint project to ensure the hospital is prepared for climate change.

While the quantity of investment in programs to prevent climate change from getting worse and protect communities from impacts is important, it's not the only consideration. Friends of the



Rally at Victoria's Parliament House on November 1

Earth believe the state budget can be modernized to bring greater transparency and better accounting to climate change.

While the government has a clear grasp of education, health, and infrastructure expenditure, it's unclear how climate is impacting the budget and what's allocated towards mitigation, adaptation, and disaster response. Bringing greater transparency to climate change in the budget will allow for its impact on state finances to be understood and tracked over time. If we don't track the costs, how can we plan for future impacts?

And when it comes to better accounting, leading policy expert Alan Pears has an elegant solution for the government to account for climate change. Pears recommends the government adopt a form of carbon valuation, noting that it could take the form of an internal government "shadow carbon price."

The Cain government modernised the Victorian budget in the 1980s. It brought greater transparency to the process by linking expenditure to a broader economic strategy and later including social justice thinking. Will Premier Andrews and Treasurer Pallas leave a similar legacy?

Lastly, when it comes to the new chapter of climate change policy in Victoria, there are some immediate things to respond to. The government will soon set the first binding Emissions Reduction Targets for 2025 and 2030. We welcome the appointed an expert panel to advise the government on them.

For Victoria to prepare its economy for the climate change challenge, it's essential to do the heavy lift of cutting emissions now. The Andrews government can build on its legacy by committing to targets that are more ambitious than those adopted by the Turnbull government – targets that ensure Victoria contributes its share towards global efforts to limit warming to 1.5 degrees Celsius.

Modernising the budget for the 21st Century challenge of climate change and taking ambition to our emissions reduction task will deliver better outcomes for Victoria for decades to come. Let us all work towards securing a brighter future. Thank you.

Leigh Ewbank is the Act on Climate (Vic) coordinator. 0406 316 176, @TheRealEwbank, leigh.ewbank@foe.org.au

There's no 'one-size-fits-all' solution to climate change. Each town, district, and community faces its own challenges and has its own vision for how to respond.

From laggard to leader: Victoria's Renewable Energy Target now law

Pat Simons

October marked an important month for Victoria's renewable energy future: after four years of community campaigning, the Victorian Renewable Energy Target was enacted.

Once home to the world's worst anti-wind laws under the Liberal government, the state Labor government has taken Victoria from laggard to leader on renewable energy.

New wind and solar farms built across Victoria over the next eight years will stand as monuments to a better future – one that delivers good regional jobs, drought-proof income for farmers and local solutions to climate change.

The call for an ambitious Victorian Renewable Energy Target (VRET) has come from Yackandandah, to Macedon, Geelong, Bendigo and elsewhere, with dozens of community groups forging ahead with their own innovative wind and solar projects.

The news has been welcomed from Portland to Ballarat and Gippsland, where the policy opens up opportunities for good, regional jobs in the wind and solar sectors and billions in investment.

Passage of legislation in October was welcomed by prospective wind farmers Kevin and Jenny Blake in Barunah Park who said: "Renewable energy is extremely important to us, as we have seen the effects of climate change personally on our farm. We are very excited to host turbines as this will help minimise the effects of climate change in the future. This legislation will also help provide us with a means to drought-proof our future earnings and keep our farm sustainable for our children and grandchildren."

Only a few days later German wind energy company Nordex announced it is setting up shop in Melbourne. And Ballarat is enacting a vision to make the city the regional capital of Victoria's renewable energy sector, if not the country, with news that Federation University will tip \$11 million into the state's first wind energy training facility.

This is exactly the kind of investment the Andrews government can encourage to make sure Victoria's turns its broader renewable energy vision into long-term, sustainable jobs in new manufacturing and maintenance supply chains.

The achievement hasn't come from nowhere – it's thanks to four years of dogged campaigning by Friends of the Earth's Yes 2 Renewables team in solidarity with grassroots sustainability groups, workers and businesses across the state that we've been able to get here. Yes 2 Renewables would like to thank everyone who has been involved in the campaign for the VRET over the years. We can all be proud of achievement.

As the divided Turnbull government takes another backward step on climate action with its latest thought bubble on energy policy, what does Victoria's renewable energy leadership mean for the country? For the foreseeable future the states, not the federal government, will lead and innovate on renewable energy policy.

Turnbull's latest energy thought bubble – the 'National Energy Guarantee' – appears designed to cripple investment in renewable energy and lock in subsidies for coal and gas. It only confirms that the current federal government cannot be trusted to deliver the kind of ambitious action on climate change we really need.

Instead, the federal Coalition should be picking up the phone and asking Victoria for advice on how to set a long-term vision on renewable energy.

Our success in Victoria shows what can be achieved when the community stands up and articulates a vision for a renewable energy future. Now is the opportunity for communities across the country to hear that call and set out their own vision and strategy of how to make your town, your city, your region a leader on climate change action.

Pat Simons is the Community Coordinator of the Yes 2 Renewables Campaign. If you want to get involved contact him at patrick.simons@foe.org.au or [@prrsimons](https://twitter.com/prrsimons) on twitter.

FoE Yes 2 Renewables
campaigners visiting
locals at the Hepburn
Community Wind Farm



When will we ban new coal mines?

Angela Merriam

"I just cannot believe that in 2017 we are still fighting the Adani coal mine" begins Stop Adani campaigner Charlie Wood, her gentle demeanour belies the indignation of her words.

It's November 1 and we're outside of Australia's largest mining conference – the International Mining and Resources Conference or IMARC – concluding a whole day of community-led actions to call on leaders to act on climate change.

A crowd of several hundred people, ranging from greenies to grannies, showed up to speak directly to the leaders of the Adani company. Adani's proposed reef-wrecking mine in Queensland has no social license. The Australian people know too much about climate change and the health effects of coal to let this disastrous mine go ahead.

The action felt fun, with Sully (aka Daniel Sullivan) leading upbeat chants on his trumpet and MC Rev. Alex Sangster light-heartedly bantering with the crowd.

Once speeches were over, several people put on bright red lipstick to leave kiss marks on the Melbourne Convention Centre windows, spelling out "Stop Adani" in hundreds of crimson kisses. You can interpret the symbolism of that as you like. But all in attendance knew that the issue of the Adani coal mine, and climate change, is of deadly importance.

Coal contributes to over 3,000 deaths in Australia every year. Air pollution kills three million people globally each year, and burning coal is a key contributor to this.

How can Coalition politicians continue to tell us that shipping coal to India will help India, when we know the health effects of burning coal? The Traditional Owners of the land, the Wangan and Jagalingou people, have repeatedly said no to the mine.

And what of climate change? Burning the coal from the Adani mine would cancel out any good achieved from our country's already weak goals for reducing greenhouse gas emissions between 2020 and 2030. And the mine would lock us into a dangerous cycle of continued coal use for 25+ years.

Many in the crowd believe we need to immediately shut down all coal-fired power plants, immediately transition to renewables, for a safer, healthier planet. Others recognise the old dictum that politics is the art of the possible; they demand, at the very least, no new coal mines.

Even in the mining industry, many support not building any new mines. They realise that the market for coal is declining. Many energy companies are switching away from fossil fuels and towards renewable energy.

The economics of new coal mines are suspicious at best. We could power this country with 100% renewable solar and wind power (see the studies from Beyond Zero Emissions and others). Why do we not ban all new coal mines immediately?

Instead, the Coalition is actively supporting new coal by lending \$1 billion to Adani.

This is why the broader picture of the Day of Action is highlighting the dangerous relationship between Australia and the fossil fuel industry. The flagrant injustice of loaning \$1 billion to a billionaire, the very idea that our politicians are even allowing new coal mines, is unthinkable in 2017.

Is Australia done with being the world's quarry? It's up to us to decide.

Angela Merriam is a member of Friends of the Earth Melbourne's Quit Coal campaign.

If you want to get involved with the Stop Adani campaign through Friends of the Earth, please contact info@quitcoal.org.au or check out our website <http://quitcoal.org.au>



Protest outside the International Mining and Resources Conference, Melbourne, November 1.

Civil society rejects GMOs at Food and Agriculture Organization meeting

Louise Sales

Civil society representatives firmly rejected genetically modified organisms (GMOs) as a means of addressing world food security at a recent Food and Agriculture Organization (FAO) meeting in Malaysia. The event was funded by the pro-GM US, Canadian and Australian governments.

Civil society representatives from the Global South rejected the premise of the event that improved access to agricultural biotechnologies are needed to help defeat hunger, malnutrition and poverty in the Asia-Pacific region.

The focus of the discussion was supposed to be on sustainable food systems for small farmers – not on increasing yields to generate more money from small pieces of land. However, the majority of the supposed ‘solutions’ presented at the meeting were GMOs – many of which were still at proof-of-concept stage.

As civil society delegates pointed out, the current supply of food already exceeds demand, but there are serious issues around good governance and equitable distribution of food. Merely securing a high yield of a few select crops does not solve the problem of hunger nor secure livelihoods for smallholders, and leads to high levels of post-harvest spoilage and food waste.

Crops developed using new GM techniques such as CRISPR were misleadingly referred to as “biotech crops”. Delegates observed that, just as with older GM techniques, the use of these techniques in food crops will increase corporate control over seeds; diminish the rich, diverse diets of local communities; promote monoculture; increase biosafety risks to health and environment; and need high investment and complicated regulatory frameworks which many countries lack.

Whilst corporate delegates at the conference called for international acceptance of their products once approved in one country, they were less happy with calls to accept global liability for their products once disseminated!

In a civil society statement released at the event, participating NGOs stated that:

“80 per cent of the world’s food is produced by small farmers and farmer autonomy is critical to maintaining current and future food security and food sovereignty for everyone. We reject solutions that increase the cost of production for farmers due to the high cost of inputs from transnational corporations. We respect farmers as true in-situ innovators and not as passive consumers of the ‘biotech toolbox’... Governments and scientists must take a holistic view of addressing the negative consequences of industrialised agriculture and avoid a ‘bandaids on cancer’ approach when it is imperative to address the causes.

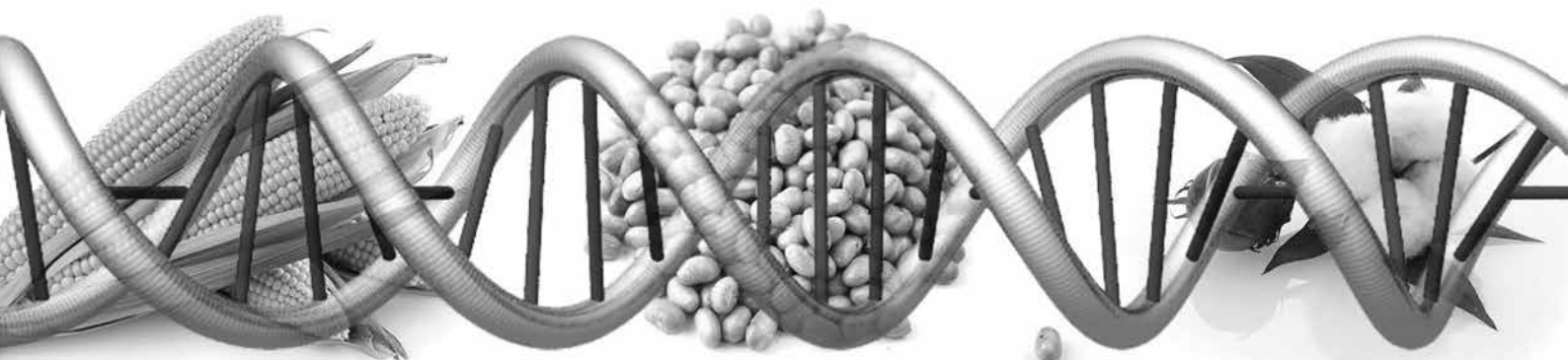
“Rather than being distracted by the shiny technocratic solutions of the GMO industry, FAO should continue its important work on promoting farmers’ access to native and locally adapted seeds and breeds, markets and value chains, and on promoting agroecology as the best way to feed the world and face the challenges of climate change.” (AFSA (2017) Civil Society Calls for Agroecology not GMOs at FAO Meeting in KL, <https://afsa.org.au/blog/2017/09/15/civil-society-calls-agroecology-not-gmos-fao-meeting-kl/>)

The US government was unhappy with the outcome and has pulled out of funding similar events in Latin America and the Middle East. This has hopefully put an end to the state sponsored peddling of GMOs to the Global South by the US and their allies Canada and Australia – in this forum at least – which is something to celebrate!

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Merely securing a high yield of a few select crops does not solve the problem of hunger nor secure livelihoods for smallholders, and leads to high levels of post-harvest spoilage and food waste.



Government proposes deregulating dangerous new genetic modification techniques

Louise Sales

At the end of October, while the entire media was consumed with the High Court ruling on dual citizenship, the Office of the Gene Technology Regulator (OGTR) quietly emailed stakeholders with its proposed changes to Australia's Gene Technology Regulations. These would make Australia the first country in the world to deregulate new genetic modification (GM) techniques such as CRISPR in animals, plants and microbes.

These techniques - collectively referred to as 'gene editing' - have been classified as "weapons of mass destruction and proliferation" in the annual worldwide threat assessment report of the U.S. intelligence community. If the OGTR deregulates these new GM techniques anyone would be free to use them to genetically modify plants, animals and microbes. They could enter our food chain and our environment with no safety testing and no labelling. The results could be catastrophic.

Reviews commissioned by the Austrian and Norwegian governments concluded there is insufficient knowledge regarding the risks posed by these techniques and that products derived

from them should require a comprehensive case-by-case risk assessment. Because of these risks, last month over 60 international scientists signed a statement calling for these techniques to be strictly regulated as GMOs. Furthermore, new research has shown that the genetic modification technique CRISPR (clustered regularly interspaced short palindromic repeats) can result in hundreds of unexpected mutations.

Other countries have taken a more cautious approach, with New Zealand recently announcing that it will regulate organisms derived from these techniques as GMOs.

The European Union has yet to make a decision on whether it will regulate these techniques as GM. The question has been taken to the European Court of Justice. This will rule next year whether a number of these new GM techniques fall under EU GMO law.

These techniques are quite clearly genetic engineering - the fact that the OGTR is even considering not regulating them demonstrates how captured the agency has become by industry interests. It's time our regulators stopped letting industry write the rules for them and put public health and our environment before private profit.

Take action: Stop the government shredding the rules on GMOs

Please visit www.gmfree.org.au and ask the Assistant Minister for Health, David Gillespie to urgently intervene to ensure that these new GM techniques are assessed for safety before being used in our food and our environment.

Louise Sales is the coordinator of Friends of the Earth's Emerging Tech Project. louise.sales@foe.org.au, www.emergingtech.foe.org.au

Nano foods: There's no proof some of the tiny things you're eating are safe

Kristen Lyons and Naomi Smith

There has been a flurry of national media coverage reporting on research demonstrating the presence of engineered nanoparticles in popular brands of Australian baby formula. These findings are groundbreaking, as they provide conclusive evidence that an ingredient (described by scientists as a needle like form of nano-hydroxyapatite) currently prohibited by Australia's food regulator, Food Standards Australia New Zealand (FSANZ), is in use in baby formula.

This nano-scale ingredient is currently prohibited on the basis that it has not complied with the legal requirement that only ingredients that have been tested and found to be safe can be used in baby formula. This is the second independent study conducted by Arizona State University that has

determined the deliberate use of nano-scale ingredients in Australian food.

Important questions arise about the health and safety risks associated with novel nano-scale ingredients. The US National Research Council has acknowledged there is not enough science to effectively assess the risks posed by nanotechnology, and a report by the UK House of Lords has warned the health risks of nano-ingredients in food remain poorly understood.

To date, Food Standards Australia New Zealand (FSANZ) has relied upon corporations to self-report on their use of nano-ingredients. The testing conducted by Arizona State University has forced FSANZ to finally abandon this position. The agency now concedes that nano-ingredients are in use but that they are safe - despite evidence to the contrary.

Abridged and lightly edited from a longer article which is posted online: Assoc. Prof. Kristen Lyons and Dr Naomi Smith, 29 July 2017, "Nano Foods: There's No Proof Some Of The Tiny Things You're Eating Are Safe", <https://newmatilda.com/2017/07/29/nano-foods-theres-no-proof-some-of-the-tiny-things-youre-eating-are-safe/>

Indigenous and Grassroots Movements Solidarity Gathering

The destructive paths of neo-liberal capitalism have forged their way through Latin America for decades, and an all-too-familiar path is being carved through the land and cultures of the First Peoples of so-called Australia. The following is a summary of a panel discussion at the 2017 Indigenous and Grassroots Movements Solidarity Gathering which was held on October 7/8 at Trades Hall in Narm (Melbourne) on unceded Wurundjeri country, Kulin Nation.

Our purpose was to come together to share and learn from each other, from different communities, cultures, and groups, in a cross-continental expression of global solidarity against the corporate machine and for a better world!

Warriors of the Aboriginal Resistance

The gathering opened with an Acknowledgement of Country from Kristy-Lee Horswood (Gamilararray) of the Warriors of the Aboriginal Resistance (WAR). Collectively recognising the history and sovereignty of the original peoples of the land we gathered on, the Wurundjeri people of the Kulin Nation, the first panel was opened: *"This is our time" - First Nations Struggles - culture, land and cosmologies: Denouncing repression, militarisation and extractivist neoliberal policies.*

Kristy-Lee was the first speaker of the panel and began by introducing herself and where she comes from as a proud Gamilararray woman, a survivor of the Stolen Generations and as an organiser and member of WAR and the Brisbane Aboriginal Sovereign Embassy (BASE). The principles that underpin the political work of WAR, Kristy-Lee explained, are resistance, revival and decolonisation. Decolonisation is a framework and principle that impacts all aspects of struggle and life. The importance of language revival was emphasised, those gathered were taught the Gamilararray greeting "Yaama", and of the Anaiwan Language Revival Program reviving the language of the Anaiwan people of so-called Armidale and the New England tablelands in New South Wales.

Kristy-Lee recounted recent research she has done into massacres of the Gonnai / Gunditjimarra people and also of the recent police brutality against young Aboriginal activists in Mpartwe (Alice Springs) as part of the Shut Youth Prisons protests. She noted the similarities between historic and modern forms of state violence used against Aboriginal people.

Kristy-Lee also spoke about the importance of the Mapuche Aboriginal Struggles for Indigenous Land (MASIL) exchange organised together with Latin American Solidarity Network (LASNET) and held in February/March 2017 in Mapuche land, Chile. The power of learning as an Indigenous political activist, about the different histories of colonisation and Indigenous struggle across international contexts and of the similarities in values and worldviews was discussed as a very powerful part of struggle. So too the histories of Latin America, North America and Turtle Island (Canada) with over 500+ years of colonisation and resistance were discussed in comparison with local history of Aboriginal peoples, who are the oldest surviving people of the earth but with just over 220 years of resistance, are younger in the process of struggle.

Kristy-Lee discussed the struggles of her Gamilararray community against fracking and coal seam gas extraction on their country by Whitehaven mining and other companies. She spoke about the most recent death in custody of Tane Chatfield and how Aboriginal people organise whilst being in a continuous state of grief, that there can be no "Reconciliation" without conciliation or a real acknowledgement of the history of this country.

Mapuche struggle

Catalina Catrileo was an international guest on the panel, a Mapuche activist and the sister of Matias Catrileo, 22 year old Mapuche activist killed by Chilean police in 2008. Catalina began by explaining to the gathering the history of Mapuche people who before invasion of the Spanish over 500 years ago, had territorial and political independence. Following the Spanish was the Chilean state and Catalina noted the similarities with Aboriginal experience of the genocide and massacres waged against the Mapuche people. Another similarity being that in Chilean schools, Mapuche children were forced to learn Spanish and forbidden to speak Mapudungun (Mapuche language) or practise their spirituality.

Catalina stated that now her people, as echoed by many speakers over the two days, have entered into a new modern form of colonisation by multinational companies. Moreover, that when legal rights are granted to land, this does not include the waterways, or underground water and so the Chilean state has legal rights to exploit the lands, as also is the case with fracking on Aboriginal land and many Indigenous communities. Catalina also emphasised the importance of protecting Indigenous languages, as language contains our relations with our ancestors she said, and our spirituality.

Catalina discussed how forestry companies and other multinational companies abuse and destroy the land and water systems as well as historic and sacred sites including cemeteries. Autonomy and self-determination, which we as Mapuche have always had, she said, was attacked by the Spanish crown, the Chilean government and now the new invasion of multinationals into our territory, families and our future.

The current situation, Catalina explained, is that of militarisation and repression from the Chilean state against Mapuche leaders and communities. The use of the anti-terrorist law (now named the Interior State Law) which remains from the Pinochet dictatorship has been a major tool of the Chilean state to criminalise and incarcerate Mapuche leaders with impunity, allowing for faceless testimonies and "preventive detention" which means that someone can be detained on suspicion of having committed a crime before any evidence is even provided.

Indigenous and
Grassroots Movements
Solidarity Gathering

This archaic and nefarious law, which has been condemned by many human rights organisations, and the United Nations, is used exclusively against Mapuche people, especially targeting community leaders including Machis (spiritual leaders) who are in the process of moving back into their land and asserting their right to self-determination and autonomy. There were recent hunger strikes of Mapuche political prisoners and Mapuche people in the cities of Temuco, Concepcion and Santiago organised huge demonstrations in solidarity with the prisoners and to demand their release.

As a result of these mass mobilisations, the state has reacted with increasing counter-intelligence and surveillance of Mapuche communities. The repression and oppression is increasing, Catalina noted, because the movements are getting stronger and gaining more solidarity from both Mapuche and Chilean society. Moreover, Mapuche communities, rather than being deterred by these increasing attacks are becoming stronger and more determined to continue in the struggle.

Mapuche people will never give up the struggle for their land and freedom, Catalina explained, because as the Mapuche traditional cry translates - Marrichiweu! - for each one who falls in the struggle, another ten will rise!

Marisol Salinas, a proud Mapuche woman and fighter living in so-called Australia, LASNET organiser and co-ordinator of the Mapuche-Aboriginal Struggles for Indigenous Land (MASIL) exchange, was the final speaker of the opening panel. Marisol spoke too about the Mapuche political prisoners and the current situation of violent repression against the Mapuche people. Marisol discussed the effects of eucalyptus and pine plantations in Mapuche land, draining the underground water table and contaminating and eroding the soil, undermining the natural cycles of life. There is ongoing research into the links also, between the Chilean forestry industry and Australian companies that profit from this destruction of Mapuche land. Hydroelectric companies were also mentioned, as having another powerful effect on the land, changing the course of the rivers and destroying the neighbouring ecosystems, as well as building dams on top of Mapuche cemeteries as in the case of the Pewenche people.

Marisol then went on to discuss the struggle of the worker-controlled ceramics factory in



Neuquen, Argentina called Zanon or Fasinpat (Fabrica Sin Patrones) - which translates as 'Factory Without Bosses'. Marisol talked about this example of Fasinpat with emphasis on the solidarity and links between the struggles of poor people and workers and Mapuche people in the context of Argentina. There are many Mapuche workers at Fasinpat and the factory itself has also built strong alliances with local Mapuche communities, who gave in solidarity during the beginning of the worker's occupation of the factory, some clay from their land to the factory to begin to produce the tiles and the factory in term has supported and acted in solidarity with the Mapuche struggle in an ongoing and permanent commitment way, from Mapuche tiles that they produce to their constant presence and promotion of Mapuche campaigns.

Marisol discussed the example of Fasinpat as one we could learn from in terms of Indigenous peoples and poor people, workers and grassroots movements working together in solidarity to support each other, not just in words but in practise.

Marisol discussed the importance of providing and making spaces for Indigenous peoples to meet and connect and develop their relationships. This is one of the main aims of the Mapuche Aboriginal Struggles for Indigenous Land (MASIL) exchange, which Marisol is a coordinator of, and which focuses on building relationships and solidarity between Indigenous people in struggle for self-determination and in defence of the Earth.

The ethics and values of non-indigenous solidarity was also discussed and the importance of respecting autonomy of communities in struggle, respecting self-determination and supporting Indigenous people's right to make their own decisions, and making clear that Indigenous people do not need to be represented by non-Indigenous people, something that Marisol believed was inherent in the work of LASNET, and why she felt that work was so important - in building bridges of solidarity and communication between the struggles of Indigenous people, workers, peasants, women and all people struggling for dignity, freedom and in defence of the Mother Earth all across Latin America, the Asia Pacific and the globe.

For more information about Mapuche Aboriginal Struggles for Indigenous Land (MASIL), visit www.facebook.com/MASILproject/ or contact coordinator Marisol Salinas at marisol.salinas@foe.org.au

For more information about the conference or the Latin American Solidarity Network, visit www.facebook.com/lasnet or email lasnet.solidarity@gmail.com

Rivers of north Australia under siege

Henry Boer

Governments and the agricultural sector have long held ambitions of conquering the vast rivers and natural landscapes of northern Australia. Since the 1940s the Commonwealth and state/territory governments have poured billions of dollars into R&D and water infrastructure projects in an attempt to expand irrigated agriculture across the north. The early narrative was built on paranoia that Australia needed to lay claim and develop the expanses of the north as a protection against military invasion.

More recent pro-development propaganda has focussed on creating a mythical food bowl that rivals other regions of Australia. Just lay out the map on this promised land, and everywhere you look there is abundant water and fertile plains awaiting the investor. But something much deeper is at work, an anxiety of unfinished business to transform northern Australia into a type of agricultural wonderland – or wasteland.

A history of failures

Outside a few areas on the eastern seaboard, attempts to establish irrigated crops in the north have largely met with economic failure.¹ Despite billions of dollars in public subsidies and hundreds of reports, studies and field trials, the region produces relatively little.

The Ord River Scheme in the West Kimberley is a prime example of poor infrastructure planning and wasted public finance. The scheme has drained an estimated \$1.5 billion in taxpayer subsidies, and huge efforts by the Commonwealth and West Australian governments to expand irrigation. The main Ord River Dam – completed in 1972 and one of the largest in the country – remains underutilised with a relatively small area of around 12-13,000 hectares currently irrigated.² Broad acre crops such as cotton and sugar were trialled and then abandoned due to problems with pests and yields, with sandalwood plantations (for aromatic oil) now the primary crop.

By many accounts the Ord is a white elephant, but the Commonwealth and Western Australia governments continue to finance its expansion.³ Since 2009, an additional \$364 million of capital expenditure has been committed to the Ord irrigation Area, adding a paltry 1,600 hectares of farming land. In terms of employment, the public investment has generated around 60 jobs, at \$6 million per job.⁴

A repeating paradigm

Once again the rivers and landscapes of the north are under siege. Commonwealth and state government ministers and their agricultural departments are building expectations of massive new infrastructure development, forming high-level committees and funding multiple dam and irrigation assessments.

This is largely being driven by the Australian government's 2015 White Paper on Developing Northern Australia, which heavily promotes irrigated agriculture.⁵

The Commonwealth also set up the National Water Infrastructure Development Fund, which has \$500 million at its disposal, and a commitment to spending big on new dams and water supply infrastructure. The Fund has spawned feasibility studies into an array of water supply and irrigation projects, most of which will require public finance to make them viable.⁶ Governments and irrigators are pushing to have their favoured projects funded, many of them ill-conceived ghosts of decades past.

Abetted by the agricultural science industry

Peddling the agenda for more dams and large-scale irrigation is the agri-industrial complex – comprising industry bodies, research organisations, politicians, agricultural agencies, and journalists. These interests control the policy process and the distribution of funding, and operate in relatively closed networks that seek to exclude external input and the public interest.

The agri-industrial complex is firmly rooted in government, with their representatives in the National Party and elsewhere, and exert significant influence over government departments responsible for primary industries and natural resources. A key player is the agri-science industry, made up of a vast collection of infrastructure engineers, water and soil scientists, agronomists and rural economists.

Leading current research is the CSIRO, flushed with multi-million-dollar budgets to undertake detailed assessment of water supply and storage options, suitability of soils and the economic viability of different crops. Studies have been completed or are underway on the Flinders, Gilbert and Mitchell Rivers in Queensland, rivers around Darwin in the Northern Territory and the Fitzroy in Western Australia.⁷

This research provides a blueprint supporting the irrigation sector. One CSIRO report estimated that an unprecedented 1.4 million hectares could support intensive farming, which would necessitate massive land clearing and extracting hundreds of gigalitres from rivers and aquifers.⁸ The report also identified billions of potential dam sites (yes that's correct) but settled on 90 large dams and weirs to support the vast expansion.⁹

The Commonwealth government is also financing the Cooperative Research Centre (CRC) for Developing North Australia, with a priority on plant and animal science to support tropical agriculture. Soon Australia could be leading the world in weird and wonderful modified crops and bots, ready to invade the tropics.

Something much deeper is at work, an anxiety of unfinished business to transform northern Australia into a type of agricultural wonderland – or wasteland.

Privatising water – a public asset

To support irrigation development requires access to large amounts of publicly owned water, a responsibility of state and territory governments. In the late 1990s, Australia faced a water crisis in the Murray Darling (has anything changed), and so governments agreed to commence water resource planning as a way to manage the over-allocation of water for different uses. Since then, river basins have been subject to multi-stakeholder planning. The result for many catchments has been business-as-usual enshrined in legislation, with users such as irrigators and industry granted private rights to extract and trade water.

The utter perversity of water planning is that the environment is viewed as just another user, such that rivers are allocated a minimal share as 'environmental flow'. When rivers are over-allocated and ecosystems are collapsing, the only option is for governments to divert public money to buy private water rights back. What a ridiculous outcome.

Rivers in the north are subject to the same perverse water planning processes that have done little to protect and restore catchments in southern or eastern catchments. Governments are now privatising large volumes of publicly owned water, often sold at discount prices and in some cases gifted away for free. In Queensland, the former LNP administration and the current Labor government under Premier Anastasia Palaszczuk have already released over 350,000 mega-litres (ML) of water in the Gilbert and Mitchell rivers, on the back of the CSIRO agricultural reports.¹⁰

In total, the Queensland government could sell off over 700,000 ML of public water from the Gilbert and Flinders, enough for several large dams or off-stream water impoundments. All this required was an amendment to the existing Gulf Water Plan, passed by the Queensland Parliament. The cheap water bonanza is already supporting proposals for monstrous new cotton and sugar plantations similar to the infamous Cubbie Station in southwest Queensland.¹¹

What's at stake?

The north of Australia remains one of last regions of the globe with relatively intact river systems,

and limited water infrastructure. The north's rivers support millions of hectares of wetlands, and abundant birdlife and aquatic fauna, making them some of the richest ecosystems left on earth. The rivers also feed the marine waters of Australia's northern coastline, creating vast integrated ecosystems that are critical for aquatic diversity. In a rapidly changing climate, the world needs vast landscapes that can support adaptation and survival of habitats and life on earth.

Despite the claims, diverting even small amounts of water, clearing land for agriculture and irrigating crops will be disastrous. Recent history shows that irrigation destroys ecosystems and pollutes our rivers and oceans with chemicals, and then the public has to pay the price of remediation or accept ecological collapse. The Great Barrier Reef is being devastated by agricultural run-off and now the public has to fund incentive schemes that encourage better management – but do little to remediate the problem.

Moreover, expanding agri-industry for questionable export markets is simply not economically viable without billions in government subsidies. In purely economic terms, the public costs of turning the river plains of northern Australia to irrigated fields will most likely exceed any gains made from any future land values.¹²

What needs to happen?

Simply put, irrigated agriculture in the north should be abandoned indefinitely. The public funding of the agri-science sector and private consultants needs to stop, as do cheap water sell-offs and potential new infrastructure spending.

Linkages between big agri-business and government and water utilities need to be made transparent and dissolved, such that decisions over water and land are made with broad public involvement.

There's a strong case that the north should remain substantially undeveloped – a large repository and haven for species survival as the world's ecosystems start to rapidly collapse in the coming decades. Government expenditure in the north should focus on enhancing ecosystem resilience and the wellbeing of communities.

Dr Henry Boer is a member of Friends of the Earth Far North Queensland.

In a rapidly changing climate, the world needs vast landscapes that can support adaptation and survival of habitats and life on earth.

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Land clearing in Queensland

Henry Boer

Land clearing (or deforestation) is out of control across Queensland – with latest figures released by the Queensland government showing a staggering 395,000 hectares was cleared in 2015-2016.¹ This is a 33% increase on the previous year and places Australia up there with the world's worst countries for deforestation including Indonesia and Brazil.²

Much of this clearing is occurring in the Great Barrier Reef catchments, which only worsens soil erosion and the amount of sediment pouring onto reefs devastated by recent coral bleaching. Over 90% of the clearing is to convert forests and woodlands to pasture for beef cattle grazing, a highly unsustainable industry. It also adds millions of tonnes of carbon dioxide to the atmosphere, undermining claims that Australia can meet its international commitment to reduce emissions.

Land clearing rates have escalated in Queensland following the severe weakening of vegetation management laws by the former Liberal National Party (LNP) government in 2012. The Palaszczuk Labor government then failed to pass stronger laws because the crossbenchers in parliament refused to support the legislation. Now we are left with a situation where forests and habitat across Queensland can be bulldozed and destroyed for any number of reasons – and the government does little to stop it.

In the Far North of the state an estimated 47,835 hectares were cleared in 2015-2016, wiping out

habitat and ecosystems in the Wet Tropics, Cape York, Gulf Plains and Einasleigh Uplands. These areas are highly sensitive, and support some of the richest biodiversity in Australia. When these forests and bushland areas are cleared and then burnt, millions of native animals also perish because their habitat is destroyed. They often cannot relocate elsewhere because those areas are not suitable, or are habitat for other wildlife populations.

It's a terrible image for visitors – promoting Far North Queensland for its World Heritage listed coral reefs and rainforests and then allowing clearing which destroys these environments. The Great Barrier Reef and Wet Tropics Rainforests are worth billions to the regional economy every year and are the mainstay of the regional tourism industry.³ We should be protecting them at all costs.

Land clearing is again creating an environmental crisis in Queensland and the state government needs to fix it immediately. Vegetation management regulations need to be tightened and enforced so that broad-scale clearing is abolished across Queensland. All remnant vegetation needs to be fully protected, as well as regrowth in highly sensitive areas around the state. Loopholes that allow clearing for dubious practices such as 'thinning', need to be removed from any future legislation. Incentives should also be made available for landowners who want to reforest and protect habitat on their land.

Dr Henry Boer is a member of Friends of the Earth Far North Queensland.

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Nobel Peace Prize winners amplify Aboriginal anti-nuclear stories

Michele Madigan

In 1964, upon accepting the Nobel Peace Prize on behalf of the non-violent US civil rights movement, Martin Luther King took pains to point out the struggle was far from won: “only yesterday in Birmingham Alabama, our children, crying out for brotherhood, were answered with fire hoses, snarling dogs and even death”. Why, he asked, award a movement which “has not yet won the very peace and brotherhood which is the essence of the Nobel Prize?”

Similar questions have been raised following the awarding of the Nobel Peace Prize to ICAN – the International Campaign to Abolish Nuclear Weapons. Why award this movement, many international journalists present at the announcement wondered, given the unsatisfactory incompleteness of the work of disarmament? Some went so far as to look for a hidden agenda, though this was strongly refuted by the Nobel committee.

One of the naysayers in Australia is the columnist Andrew Bolt. Given his ideological leanings, Bolt’s severe displeasure was perhaps predictable. What was shameful however, was his insulting of one of Australia’s own ‘nuclear survivors’, the late Yankunytjatjara Elder Yami Lester. Lester, an anti-nuclear and Aboriginal rights advocate who died in July this year, was left blind following British nuclear tests in the South Australian outback in the 1950s.

Bolt refuses to believe that the life of the young stockman from Wallatina Station in South Australia’s far northwest (now the APY Lands) was irretrievably changed on ‘the day the earth shook’. He quoted the opinion presented to the 1984-1985 McClelland Royal Commission into British nuclear tests in Australia by eye specialist Dr David Tonkin that Lester’s blindness was ‘more likely’ caused by ‘trachoma, measles and poor nutrition’.

This opinion remains contrary to that held by the internationally renowned eye specialist Dr Fred Hollows, whose own examination of Lester led to a total conviction that Lester’s blindness was due to radiation. Even though, as Bolt points out, Lester was 175km from the nuclear epicentre, desert winds and the force of the explosion meant both Aboriginal and non-Aboriginal station people and others as far away as Coober Pedy were severely affected.

Out of all the Aboriginal witnesses at the exhaustive McClelland royal commission, only a handful of them were awarded individual compensation. Edie Milpuddie, about whom the late journalist Bob Ellis wrote so movingly, was one. Yami Lester was another.

ICAN is a movement of Australian origin. It began in 2007 as a response to the difficulties in progress in disarmament by more official organisations. While indeed the work of

disarmament might be ‘incomplete’, on July 7 this year ICAN secured a significant victory when 122 nations adopted a UN Treaty on the Prohibition of Nuclear Weapons; despite the nuclear weapons states and some unquestioning allies, including Australia, not participating.

In their exultant reply to the Nobel Prize announcement, ICAN paid tribute firstly to the survivors of the atomic bombings of Hiroshima and Nagasaki – the hibakusha – and then “to victims of nuclear test explosions around the world ... whose searing testimonies and unstinting advocacy were instrumental in securing this landmark agreement”.

As part of their campaign to present evidence to world nations, earlier this year ICAN Australia sponsored modern day Aboriginal nuclear survivors to address the UN. Among those who spoke were Karina Lester, Yami’s younger daughter, and Susan Coleman-Haseldine, whose testimony in March stated: “I was born in 1951 on Koonibba Mission. I was a small child when the British and Australian governments tested nuclear weapons in the South Australian desert near my birthplace ... Though we live in remote Australia, we now know that everywhere they have been used world wide, nuclear weapons have devastated peoples and their lands.”

That same month, 52 faith based organisations – Christian, Buddhist, Jewish, Hindu, Muslim – sent their plea to “the Australian government to support and participate in the upcoming (UN) negotiations. Let us stand together to build peace and outlaw nuclear weapons.” The Australian government failed to even attend.

So as ICAN executive director Beatrice Fihn acknowledges: “We’re not done yet ... Nuclear weapons have the risk of literally ending the world ... As long as they exist, the risk will be there, and eventually our luck will run out.” But there’s encouragement to be gained from the 1964 Nobel prize winner’s speech: “I refuse to accept the cynical notion that nation after nation must spiral down a militaristic stairway into the hell of thermonuclear destruction. I believe that unarmed truth and unconditional love will have the final word in reality.”

Michele Madigan is a Sister of St Joseph who has spent the past 38 years working with Aboriginal people in remote areas of South Australia and in Adelaide. Her work has included advocacy and support for senior Aboriginal women of Coober Pedy in their campaign against the proposed national radioactive dump.

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“Though we live in remote Australia, we now know that everywhere they have been used world wide, nuclear weapons have devastated peoples and their lands.”

ICAN's Nobel Peace Prize born in Australia

Dave Sweeney

If your sole source of information is the federal government you probably would have missed the news that a small group of Australians recently made history and greatly increased the chances of a living planet.

In October, ICAN – the International Campaign to Abolish Nuclear Weapons – an initiative born in Melbourne and adopted, adapted and applied around the world, was awarded the 2017 Nobel Peace Prize for its “work to draw attention to the catastrophic humanitarian consequences of any use of nuclear weapons and for its ground-breaking efforts to achieve a treaty-based prohibition of such weapons”.

The Turnbull government churlishly declined to congratulate ICAN but there has been widespread and welcome acknowledgement across Australia and around the world. At a time when the threat of nuclear war is more explicit than it has been in decades, the ICAN story is timely and shows the power of both the individual and the idea.

When ICAN started in 2007 its founders – who included long-time Friends of the Earth fellow travellers Dimity Hawkins and the late and dearly missed Bill Williams – could have fitted in a minibus. Ten years later there are over 460 ICAN groups and formal partners in more than 100 nations.

The public unveiling of the nuclear weapons era in August 1945 brought the end of many lives and the awareness that all remaining life was now living in the nuclear shadow. The shadow remains but there is a growing sense of life and light following this powerful recognition.

Nuclear weapons are the most destructive force on Earth and, along with climate change, they pose an existential threat to our shared planet. They have held nations to ransom, fuelled a Cold War, diverted vast financial resources and scientific capacity from meeting pressing human needs, been the stuff of science fiction, pop culture and nightmares and a literal cancer on the global body politic.

Through a combination of good hearts and good luck nuclear weapons have not been used in war since 1945 – but they have been threatened, scrambled, tested and lost.

And they have always been challenged. There is an important, proud and powerful tradition of protest, opposition and action. ICAN has grown

and stood on the shoulders of all who have earlier championed an end and will be a platform for those who will take the story and the struggle forward.

It is very hard to take the sticks from the biggest kids in the schoolyard and diplomatic efforts to wind back the nuclear clock have failed, been derailed or reached only partway.

Institutional barriers to real disarmament are very high – from the hypocrisy of the nuclear armed permanent members of the UN Security Council, the political clout and donations of the weapons corporations and the flag-waving and hand-wringing of politicians.

In order to gain and maintain momentum for change ICAN's approach has been to bypass these barriers by not looking to convince the nuclear weapons states, but rather to isolate them.

Modelled on the approach taken around chemical and biological weapons, the new ban doesn't seek the approval of the nuclear weapons states, instead it aims to shrink any legitimacy these weapons and their defenders may have or claim.

In July 2017, over 120 nations agreed on the formal text of a treaty ban and by September enough nations had signed on to make the ban a reality. Currently nations are going through their domestic processes required for ratification. When 50 nations have done so, the ban will enter into force and nuclear weapons will be outside the law.

And this has taken place despite active opposition and undermining from the nuclear weapons states and their deputies, including – sadly and shamefully – Australia.

The ban treaty is detailed and powerful and key provisions include:

- A prohibition on developing, testing, producing, manufacturing, acquiring, possessing, transferring, stockpiling, using and threatening to use nuclear weapons.
- A prohibition on assisting, encouraging or inducing anyone to participate in any of the above activities.
- Recognition of the disproportionate impact of nuclear weapons activities on Indigenous peoples, and on women and girls.
- An obligation for all states parties to provide victim assistance and take measures towards environmental remediation.

Friends of the Earth
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With an increasingly fractured, complicated and nuanced global geo-political landscape nuclear weapons are an unwieldy and obsolete defence tool with scant strategic purpose.

Any strategic rationale that might have existed when the world was divided between two superpowers who shared a common adherence to the mad concept of mutually assured destruction is gone. We live in a world where stanley knives on commercial planes and stolen cars in crowded places are the new weapons of terror.

Nuclear weapons do not promote security, they fatally undermine it. They are obscene and weapons of indiscriminate and mass destruction that have no place on a living planet.

And now they are illegal. This provides our planet's best chance to get rid of its worst weapons.

In July, Yami Lester, a senior Aboriginal man blinded by British nuclear testing in South Australia in the mid 1950's, passed away. His daughter Karina is one of many Aboriginal people who have been active drivers of the nuclear weapons ban initiative and she told an earlier UN gathering in New York that while her dad had lost his eyesight he 'never lost his vision of a cleaner and safer future free of nuclear threats from weapons and waste'.

Many others hold this vision and the ban push is gaining traction around the world and across Australia with polls showing clear majority support. The Australian government now needs to realise that the momentum towards ending nuclear weapons is strong, supported and sane.

AS ICAN Australia noted in its response to the Peace Prize: "this award shines a needed light on the path the ban treaty provides towards a world free of nuclear weapons. Before it is too late, we must take that path."

Australia now needs to sign on to what is literally a global smoking ban. Our politicians to raise their hands against nuclear arms, quit the excuses and butt out nuclear weapons.

Dave Sweeney was one of those in the mini-bus and is a co-founder of ICAN.

What is the Active Friends Program?

The Active Friends Program is one of the best means to support current and future work of Friends of the Earth. It involves a regular monthly donation of a self-nominated amount.

Where will Active Friends donations go?

Friends of the Earth is renowned for making a little money go a long way. Because our administration costs are always kept to a bare minimum, practically all Active Friends contributions directly support campaign work, publications and community engagement. Active Friends donations support

- a moratorium on coal and coal seam gas mining through our 'Quit Coal' campaign

- renewable energy through our 'yes2renewables' campaign

- our work to safeguard water for the rivers, wetlands and forests of over 14% of Australia's landscapes through the 'ourdarlingmurray.org' campaign

- FoE's Anti Nuclear & Clean Energy (ACE) campaign, which continues to highlight the dangers of nuclear power and uranium mining and to promote safe alternatives.

Why is the Active Friends Program vital to FoE?

To remain a radical and credible voice for social and environmental justice, we need a stable financial base.

How can you join the Active Friends Program?

To join the Active Friends program, please see the 'Support Friends of the Earth' page in this edition of Chain Reaction, or go to www.foe.org.au and click on the donate button.. All Active Friends donations are fully tax deductible.

Australian uranium miner goes bust – so who cleans up its mess in Africa?

Morgan Somerville and Jim Green

Perth-based uranium mining company Paladin Energy was put into administration in July and the company is teetering on the brink of bankruptcy. Critics of the uranium industry won't miss the company if it disappears. Other uranium mining companies won't miss Paladin; in an overcrowded market, they will be pleased to have less competition.

But the looming bankruptcy does pose one major problem. Paladin's Kayelekera uranium mine in Malawi, the 'warm heart of Africa', needs to be rehabilitated and Paladin hasn't set aside nearly enough money for the job.

Under the leadership of founder and CEO John Borshoff, described as the grandfather of Australian uranium, Paladin has operated two uranium mines over the past decade. The Langer Heinrich mine in Namibia was opened in 2007, and Kayelekera in 2009.

They were heady days – there was an endless talk about a nuclear power 'renaissance' and the uranium price tripled between June 2006 and June 2007. The *Australian Financial Review* reflected on Paladin's glory days: "John Borshoff was once one of Western Australia's wealthiest businessmen. The founder of Perth-based Paladin Energy developed an enviable portfolio of African uranium mines supposed to satiate booming global demand for yellowcake. When the company's Langer Heinrich mine began shipments in March 2007, as the spot price for uranium eclipsed \$US100 per pound, Paladin was worth more than \$4 billion."

Paladin was once the best-performed stock in the world according to *The Australian* newspaper. The company's share price went from one cent in 2003 to A\$10.80 in 2007. Borshoff made his debut on the *Business Review Weekly's* 'Rich 200' list in 2007 with estimated wealth of A\$205 million.

But the good times didn't last. The uranium bubble burst in mid-2007, and the Fukushima disaster in 2011 ensured that there would be no nuclear power renaissance and that the uranium industry would remain depressed for years to come. Borshoff left Paladin in 2015, and in 2016 Paladin's new CEO Alexander Molyneux said that "it has never been a worse time for uranium miners".

The loss-making Kayelekera mine in Malawi was put into care-and-maintenance in July 2014, leaving Paladin with the modest Langer Heinrich mine plus a number of projects the

company describes as 'nonproducing assets' (such as uranium deposits in jurisdictions that ban uranium mining).

Paladin was put into administration in July this year, unable to pay its debts. Even if Paladin sold its 75% stake in Langer Heinrich, its only revenue-raising project, it couldn't repay all its debts.

Administrators from KPMG are attempting to sort out the mess and bondholders are reportedly being asked to fund a recapitalisation of Paladin. Bankruptcy would seem a much more likely option given the weakness of the company and the weakness of the global uranium market.

Paladin has said that a uranium price of about US\$75 per pound would be required for Kayelekera to become economically viable – almost four times the current uranium spot price, and well over twice the current long-term contract price. Even if the uranium price did rebound, Kayelekera would operate for only around four years; it isn't a large deposit.

The likelihood of uranium prices reaching US\$75 in the foreseeable future is near-zero. John Borshoff said in 2013 that the uranium industry "is definitely in crisis ... and is showing all the symptoms of a mid-term paralysis". Former World Nuclear Association executive Steve Kidd said in May 2014 that the industry is set for "a long period of relatively low prices, in which uranium producers will find it hard to make a living". Nick Carter from Ux Consulting said in April 2016 that he did not anticipate a uranium supply deficit until the late 2020s. Other industry insiders and market analysts have made similar comments about the bleak future for uranium – and the bondholders being asked to recapitalise Paladin would surely know that their money would be better invested in a long-shot at Flemington.

Who cleans up Kayelekera?

Assuming Paladin goes bankrupt, who cleans up the Kayelekera open-pit uranium mine? The company was required to lodge a US\$10 million Environmental Performance Bond with Malawian banks, and presumably that money can be tapped to rehabilitate Kayelekera. But US\$10 million won't scratch the surface. According to a Malawian NGO, the rehabilitation cost is estimated at US\$100 million – ten times the amount set aside by Paladin. The cost of rehabilitating the Ranger uranium in the Northern Territory – also an open-pit uranium mine, albeit larger than Kayelekera – is estimated at just under US\$500 million.

Paladin has ignored our requests to provide its estimate of the cost of rehabilitating Kayelekera, but we can safely say that the figure will be multiples of the US\$10 million bond. Just keeping Kayelekera in care-and-maintenance costs US\$10-12 million annually.

As things stand, if Paladin goes bankrupt and fails to rehabilitate Kayelekera, either rehabilitation will be coordinated and funded by the Malawian government (with a small fraction of the cost coming from Paladin's bond) or the mine-site will not be rehabilitated at all.

Is it reasonable for Australia, a relatively wealthy country, to leave it to the overstretched, under-resourced government of an impoverished African nation to clean up the mess left behind by an Australian mining company? If the Malawian government cleans up Paladin's mess, that will necessarily come at the expense of other priorities. Malawi is one of the poorest countries in the world. According to a 2013 U.N. report, more than half the population live below the poverty line, and about half of all children under the age of five show signs of chronic malnutrition.

Foreign Minister Julie Bishop should intervene to sort out the situation at Kayelekera and to prevent a repetition of this fiasco. We imagine that the Minister's eyes might glaze over in response to a moral argument about the importance of Australia being a good global citizen. But there is also a hard-headed commercial argument for intervention to clean up Kayelekera.

It does Australian companies investing in mining ventures abroad no good whatsoever to leave Kayelekera unrehabilitated, a permanent reminder of the untrustworthiness and unfulfilled promises of an Australian miner and the indifference of the Australian government. Australia is set to become the biggest international miner on the African continent, perhaps as early as this year, according to the Australia-Africa Minerals & Energy Group. But Australian companies can't expect to be welcomed if travesties such as Kayelekera remain unresolved.

'Overly sophisticated'

Back in 2006, John Borshoff told ABC television that Australia and Canada have become "overly sophisticated" with their thinking about environmental and social issues associated with the mining industry. Hence Paladin's focus on projects in Africa.

One advantage - if that's the word - of mining in Africa is that Paladin hasn't had to set aside sufficient funds to rehabilitate Kayelekera. The company's environmental and social record has also been the source of ongoing controversy and the subject of countless critical reports.

Paladin has lost money on Kayelekera, and the economic benefits for Malawi have been pitiful. Paladin has exploited the country's poverty to secure numerous reductions and exemptions from payments normally required by foreign investors. United Nations' Special Rapporteur Olivier De Schutter noted in a 2013 report that "revenue losses from special incentives given to Australian mining company Paladin Energy, which manages the Kayelekera uranium mine, are estimated to amount to at least US\$205 million (MWK 67 billion), and could be up to US\$281 million (MWK 92 billion) over the 13 year lifespan of the mine."

The official line from Australia's Department of Foreign Affairs and Trade is that "mining offers African countries an unparalleled opportunity to stimulate growth and reduce poverty. If well managed, the extractives sector can drive innovation, generate revenue to fund critical social services and upgrade productive physical infrastructure, and directly and indirectly create jobs."

The reality at Kayelekera is starkly different from the picture painted by the bureaucrats in Canberra.

Two years ago, then WA Premier Colin Barnett told a mining conference in South Africa that Australian mining companies have "brought both expertise and ethical standards. It is a matter of pride for many companies that the standards applied in Australia are also applied in Africa."

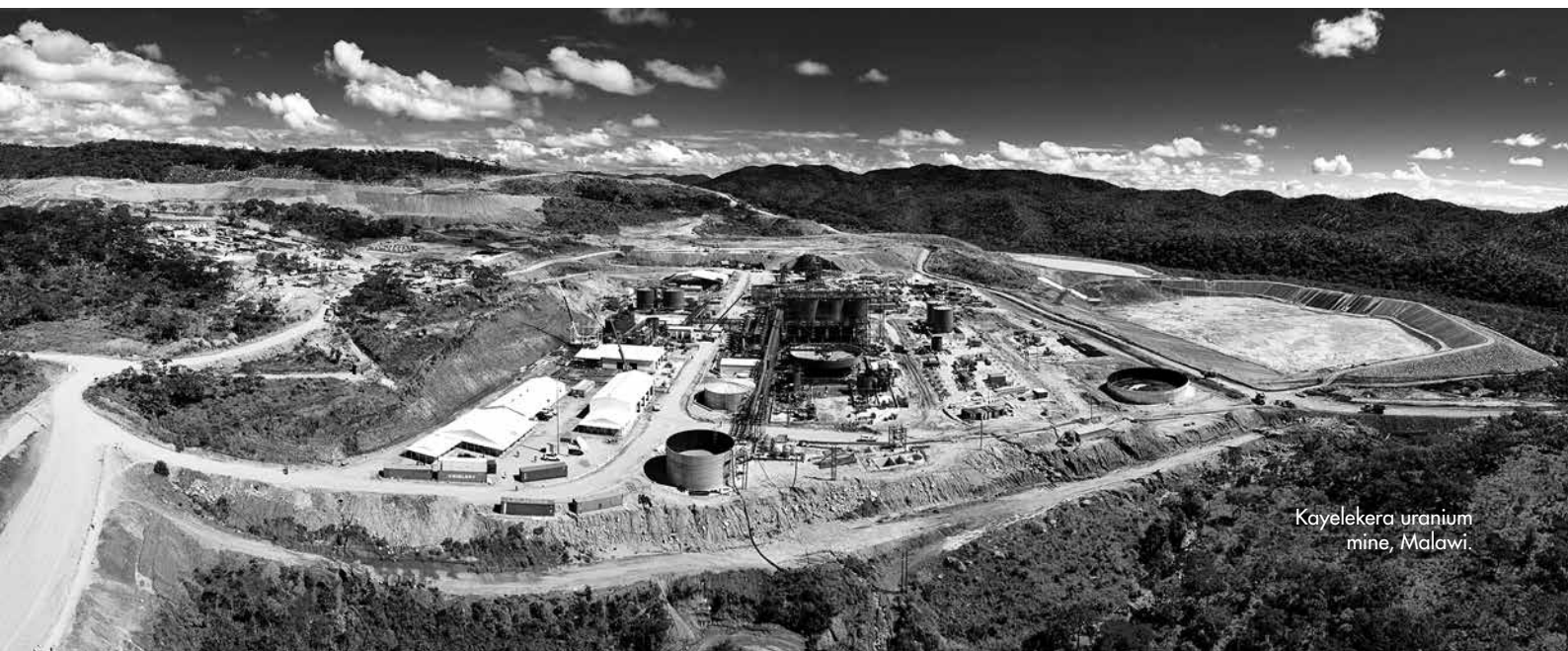
But standards at Kayelekera fall a long way short of Australian standards. Moreover, Barnett's claims sit uncomfortably with the highly critical findings arising from a detailed investigation by the International Consortium of Independent Journalists. The Consortium noted in its 2015 report that since 2004, more than 380 people have died in mining accidents or in off-site skirmishes connected to Australian mining companies in Africa (there have been six deaths at Kayelekera). The report further stated: "Multiple Australian mining companies are accused of negligence, unfair dismissal, violence and environmental law-breaking across Africa, according to legal filings and community petitions gathered from South Africa, Botswana, Tanzania, Zambia, Madagascar, Malawi, Mali, Cote d'Ivoire, Senegal and Ghana."

Not even Colin Barnett would argue that Paladin is a source of pride for Australia. Quite the opposite. Likewise, Foreign Minister Julie Bishop surely didn't have Paladin's open-cut mine in mind when she told the Africa Down Under mining conference in Perth in September that many Australian mining projects in Africa are outposts of good governance and that the "Australian Government encourages the people of Africa to see us as an open-cut mine for lessons-learned, for skills, for innovation and, I would like to think, inspiration."

Julie Bishop, the WA government, Paladin and its administrators from KPMG need to liaise with the Malawian government and Malawian civil society to sort the rehabilitation of Kayelekera. An obvious starting point would be to prioritise the rehabilitation of Kayelekera if and when Paladin goes bankrupt and its carcass is being divided up. Surely Kayelekera should take precedence over debtors such as French state-owned utility EDF, which is owed US\$277 million by Paladin - all the more so since the French state has its own sordid history of uranium mining in Africa.

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Kayelekera uranium mine, Malawi.

James Hansen's Generation IV nuclear delusions

Jim Green

The two young co-founders of nuclear engineering start-up Transatomic Power were embarrassed earlier this year when their claims about their molten salt reactor design were debunked, forcing some major retractions.

The claims of MIT nuclear engineering graduates Leslie Dewan and Mark Massie were trumpeted in MIT's *Technology Review* under the headline, 'What if we could build a nuclear reactor that costs half as much, consumes nuclear waste, and will never melt down?'

MIT physics professor Kord Smith debunked a number of Transatomic's key claims. Smith says he asked Transatomic to run a test which confirmed that "their claims were completely untrue."

Kennedy Maize wrote about Transatomic's troubles in *Power Magazine*: "[T]his was another case of technology hubris, an all-to-common malady in energy, where hyperbolic claims are frequent and technology journalists all too credulous." Pro-nuclear commentator Dan Yurman said that "other start-ups with audacious claims are likely to receive similar levels of scrutiny" and that it "may have the effect of putting other nuclear energy entrepreneurs on notice that they too may get the same enhanced levels of analysis of their claims."

Well, yes, others making false claims about Generation IV reactor concepts might receive similar levels of scrutiny ... or they might not. Arguably the greatest sin of the Transatomic founders was not that they inadvertently made false claims, but that they are young, and in Dewan's case, female. Ageing men seem to have a free pass to peddle as much misinformation as they like without the public shaming that the Transatomic founders have been subjected to. A case in point is climate scientist James Hansen - you'd struggle to find any critical commentary of his nuclear misinformation outside the environmental and anti-nuclear literature.

Hansen states that 115 new reactor start-ups would be required each year to 2050 to replace fossil fuel electricity generation - a total of about 4,000 reactors. Let's assume that Generation IV reactors do the heavy lifting, and let's assume that mass production of Generation IV reactors begins in 2030. That would necessitate about 200 reactor start-ups per year from 2030 to 2050 - or four every week. Good luck with that.

Moreover, the assumption that mass production of Generation IV reactors might begin in

or around 2030 is unrealistic. A report by a French government authority, the Institute for Radiological Protection and Nuclear Safety, states: "There is still much R&D to be done to develop the Generation IV nuclear reactors, as well as for the fuel cycle and the associated waste management which depends on the system chosen."

Likewise, a US Government Accountability Office report on the status of small modular reactors (SMRs) and other 'advanced' reactor concepts in the US concluded: "Both light water SMRs and advanced reactors face additional challenges related to the time, cost, and uncertainty associated with developing, certifying or licensing, and deploying new reactor technology, with advanced reactor designs generally facing greater challenges than light water SMR designs. It is a multi-decade process ..."

An analysis recently published in the peer-reviewed literature found that the US government has wasted billions of dollars on Generation IV R&D with little to show for it. Lead researcher Dr Ahmed Abdulla, from the University of California, said that "despite repeated commitments to non-light water reactors, and substantial investments ... (more than \$2 billion of public money), no such design is remotely ready for deployment today."

Nuclear weapons

In a nutshell, Hansen (among others) claims that some Generation IV reactors are a triple threat: they can convert weapons-usable (fissile) material and long-lived nuclear waste into low-carbon electricity. Let's take the weapons and waste issues in turn.

Hansen says Generation IV reactors can be made "more resistant to weapons proliferation than today's reactors" and he claims that "modern nuclear technology can reduce proliferation risks". But *are* new reactors being made more resistant to weapons proliferation and *are* they reducing proliferation risks? In a word: No.

Fast neutron reactors have been used for weapons production in the past (e.g. by France) and will likely be used for weapons production in future (e.g. by India). India plans to produce weapons-grade plutonium in fast breeder reactors for use as driver fuel in thorium reactors. Compared to conventional uranium reactors, India's plan is far worse on both proliferation and security grounds. To make

The US government has wasted billions of dollars on Generation IV R&D with little to show for it.

matters worse, India refuses to place its fast breeder / thorium program under International Atomic Energy Agency safeguards.

Hansen claims that thorium-based fuel cycles are “inherently proliferation-resistant”. That’s garbage – thorium has been used to produce fissile material (uranium-233) for nuclear weapons tests. Again, India’s plans provide a striking real-world refutation of Hansen’s dangerous misinformation.

Hansen claims that integral fast reactors (IFR) – a non-existent variant of fast neutron reactors – “could be inherently free from the risk of proliferation”.

That’s another dangerous falsehood. Dr George Stanford, who worked on an IFR R&D program in the US, notes that proliferators “could do [with IFRs] what they could do with any other reactor – operate it on a special cycle to produce good quality weapons material.”

Hansen acknowledges that “nuclear does pose unique safety and proliferation concerns that must be addressed with strong and binding international standards and safeguards.” There’s no doubting that the safeguards systems needs strengthening. In articles and speeches during his tenure as Director General of the UN’s International Atomic Energy Agency from 1997-2009, Dr Mohamed ElBaradei said that the Agency’s basic rights of inspection are “fairly limited”, that the safeguards system suffers from “vulnerabilities” and “clearly needs reinforcement”, that efforts to improve the system have been “half-hearted”, and that the safeguards system operates on a “shoestring budget ... comparable to that of a local police department”.

Hansen says he was converted to the cause of Generation IV nuclear technology by Tom Blees, whose 2008 book *Prescription for the Planet* argues the case for IFRs. But Hansen evidently missed those sections of the book where Blees argues for radically strengthened safeguards including the creation of an international strike-force on full standby to attend promptly to any detected attempts to misuse or to divert nuclear materials. Blees also argues that “privatized nuclear power should be outlawed worldwide” and that nuclear power must either be internationalised or banned to address the “shadowy threat of nuclear proliferation”.

So what is James Hansen doing about the inadequate nuclear safeguards system? This is one of the great ironies of his nuclear advocacy



The Monju fast neutron reactor in Japan.

– he does absolutely nothing other than making demonstrably false claims about the potential of Generation IV concepts to solve the problems, and repeatedly slagging off at organisations with a strong track record of campaigning for strengthened safeguards.

Waste

Hansen claims that “modern nuclear technology can ... solve the waste disposal problem by burning current waste and using fuel more efficiently” and he states that nuclear waste “is not waste, it is fuel for 4th generation reactors!”

But even if IFRs – Hansen’s favoured Generation IV concept – worked as hoped, they would still leave residual actinides, and long-lived fission products, and long-lived intermediate-level waste in the form of reactor and reprocessing components ... all of it requiring deep geological disposal. U.C. Berkeley nuclear engineer Prof. Per Peterson states: “Even integral fast reactors (IFRs), which recycle most of their waste, leave behind materials that have been contaminated by transuranic elements and so cannot avoid the need to develop deep geologic disposal.”

So if IFRs don’t obviate the need for deep geological repositories, what problem do they solve? They don’t solve the WMD proliferation problem associated with nuclear power. They would make more efficient use of uranium ... but uranium is plentiful.

In theory, IFRs would gobble up nuclear waste and convert it into low-carbon electricity. In practice, the EBR-II reactor in Idaho – an IFR prototype, shut down in 1994 – has left a legacy of troublesome waste.

This saga is detailed in a recent article and a longer report by the Union of Concerned Scientists’ senior scientist Dr Ed Lyman. Lyman states that attempts to treat IFR spent fuel with pyroprocessing have not made management and disposal of the spent fuel simpler and safer, they have “created an even bigger mess”.

Lyman concludes: “Everyone with an interest in pyroprocessing should reassess their views given the real-world problems experienced in implementing the technology over the last 20 years at [Idaho National Laboratory]. They

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should also note that the variant of the process being used to treat the EBR-II spent fuel is less complex than the process that would be needed to extract plutonium and other actinides to produce fresh fuel for fast reactors. In other words, the technology is a long way from being demonstrated as a practical approach for electricity production.”

Japan is about to get first-hand experience of the waste legacy associated with Generation IV reactors in light of the decision to decommission the Monju fast neutron reactor. Decommissioning Monju has a hefty price-tag – far more than for conventional reactors. According to a 2012 estimate by the Japan Atomic Energy Agency, decommissioning Monju will cost an estimated ¥300 billion (A\$3.5bn). That estimate includes ¥20 billion to remove spent fuel from the reactor – but no allowance is made for the cost of disposing of the spent fuel, and in any case Japan has no deep geological repository to dispose of the waste.

Generation IV economics

Hansen claimed in 2012 that IFRs could generate electricity “at a cost per kW less than coal.” A complex, novel reactor coupled to a complex, novel reprocessing system will be cheaper than shovelling coal into a burner? Seriously? He was closer to the mark in 2008 when he said: “I do not have the expertise or insight to evaluate the cost and technology readiness estimates” of IFR advocate Tom Blees and the “overwhelming impression that I get ... is that Blees is a great optimist.”

The US Government Accountability Office’s 2015 report noted that technical challenges facing SMRs and advanced reactors may result in higher-cost reactors than anticipated, making them less competitive with large light-water reactors or power plants using other fuels.

A 2015 report by the International Energy Agency (IEA) and the OECD’s Nuclear Energy Agency (NEA) arrived at the circular, disingenuous conclusion that nuclear power is “an attractive low-carbon technology in the absence of cost overruns and with low financing costs”. But the IEA/NEA report made no effort to spin the economics of Generation IV nuclear concepts, stating that “generation IV technologies aim to be at least as competitive as generation III technologies ... though the additional complexity of these designs, the need to develop a specific supply chain for these reactors and the development of the associated fuel cycles will make this a challenging task.”

The late Michael Mariotte commented on the IEA/NEA report: “So, at best the Generation IV reactors are aiming to be as competitive as the current – and economically failing – Generation III reactors. And even realizing that inadequate goal will be “challenging.” The report might

as well have recommended to Generation IV developers not to bother.”

Of course, Hansen isn’t the only person accounting creatively. A recent report states that the “cost estimates from some advanced reactor companies – if accurate – suggest that these technologies could revolutionize the way we think about the cost, availability, and environmental consequences of energy generation.” To estimate the costs of Generation IV nuclear concepts, the researchers simply asked companies involved in R&D projects to supply the information!

The researchers did at least have the decency to qualify their findings: “There is inherent and significant uncertainty in projecting NOAK [nth-of-a-kind] costs from a group of companies that have not yet built a single commercial-scale demonstration reactor, let alone a first commercial plant. Without a commercial-scale plant as a reference, it is difficult to reliably estimate the costs of building out the manufacturing capacity needed to achieve the NOAK costs being reported; many questions still remain unanswered – what scale of investments will be needed to launch the supply chain; what type of capacity building will be needed for the supply chain, and so forth.”

Hansen has doubled down on his nuclear advocacy, undeterred by the Fukushima disaster; undeterred by the economic disasters of nuclear power in the US, the UK, France, Finland and elsewhere; and undeterred by the spectacular growth of renewables and the spectacular cost reductions (he claims that renewables account for 1–2 percent of global electricity generation – the true figure is 24.5 percent).

Hansen needs to take his own advice. Peter Bradford, adjunct professor at Vermont Law School and a former US Nuclear Regulatory Commission member, wrote in response to a letter co-authored by Hansen:

“The Hansen letter contains these remarkably unself-aware sentences:

‘To solve the climate problem, policy must be based on facts and not on prejudice.’

‘The climate issue is too important for us to delude ourselves with wishful thinking.’

‘The future of our planet and our descendants depends on basing decisions on facts, and letting go of long held biases when it comes to nuclear power.’

Amen, brother.”

Dr Jim Green is the national nuclear campaigner with Friends of the Earth Australia and editor of the Nuclear Monitor newsletter.

A referenced version of this article is posted at <http://reneweconomy.com.au/james-bansens-generation-iv-nuclear-fallacies-fantasies-70309/>

Decommissioning Monju has a hefty price-tag – far more than for conventional reactors.



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Thanks to everyone who took part in the rally to support communities facing nuclear waste dumps. Over 1500 people came to send a message to state and federal politicians that SA is too good to waste and that the Flinders Ranges and Kimba region on the Eyre Peninsula are off limits for Canberra's current nuke waste plan. Stay in touch with the issue at www.dontdumponsa.org

The federal government wants to dump **nuclear waste** in SA, targetting our iconic **Flinders Ranges** and farming land at **Kimba**. State and national leaders must listen....

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