

Sustainability 2019

HINTS FOR LIVING A SUSTAINABLE LIFE

VOLUME 11, JUNE 2019

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is to damage your children."
- Wendell Berry

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It's up to us...

You know this climate malarkey? Well, the solution is up to us. Yes, us – every single individual and every single individual decision we make.

So will you get on your bike or drive your car? Will you start that veggie patch today or never get around to it? Did you really need that thing you just bought?

My parents' generation was fighting and marching against wars such as the one in Vietnam. In my generation we kind of got everything, we didn't have to march against wars, or nuclear disarmament – we kind of thought all that shit was sorted.

But while we were looking at this pad and that phone, getting bigger screens for streaming movies and working our social media accounts, the younger generation has realised that it is time to start marching and protesting again. The

School Strike 4 Climate has brought more than one million young people onto the streets around the world. Why? Because on our watch we're still at war, there are still children who are homeless and being used as child soldiers and we are in a war to maintain a climate that humans can continue to live and thrive in.

Is it really that bad? The answer is yes. According to the science. That science that has made first-world lives so rich and comfortable is telling us that the compounding issues of population, greenhouse-gas emissions and the thoughtless greedy use of resources without considering the real costs are transforming the planet in a radical way.

We need to work together for a radical change. It's up to us.

Aslan Shand



Meet our models

For the 2019 Sustainable Futures cover we decided to go with the idea of the importance of looking after the earth because she will nurture the children of the future. All we needed was a breast feeding bub to make our plan work and the wonderful Abbey Trethowan and eight month old Zephyr came to the rescue and met with the Tree Faerie to get some photos on a surprisingly warm June morning on New Brighton beach. The concept strayed a little from the exact vision we had, but we are really happy with the result. Thanks Abbey and Zephyr!

Some Sustainability 2019 highlights:

- ▶ Mandy Nolan vs fossil fools page 5
- ▶ Thinking about going off grid? page 6
- ▶ Re-imagining transport page 8
- ▶ Get the build right first page 14
- ▶ Positive feedback loops page 15
- ▶ A directory of all of the wonderful local businesses who made this publication possible page 19

'To take action in the face of a corrupt government entails risks of harm to life and loved ones. To choose to do nothing is to surrender one's self-image of standing for principles. Most people do not have the courage to face that choice. Hence, most propaganda is not designed to fool the critical thinker but only to give moral cowards an excuse not to think at all.' – Michael Rivero

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Taking action – locking on for koalas at Gibberagee

Dailan Pugh

In March this year I felt I had no option but to lock on to a log loader to stop the Forestry Corporation logging important koala habitat.

We had found widespread evidence of koalas in Gibberagee State Forest (east of Whiporie) just when logging began, and they had refused my repeated requests to undertake the legally required surveys to identify and protect koala high-use areas.

Repeat offences

I have been auditing forestry operations for years, and find the same types of offences time and time again, demonstrating their cavalier attitude to compliance with such laws.

In March 2017 in Gibberagee we found the Forestry Corporation were roading and logging within exclusion zones for the world population of the endangered shrub narrow-leaved Melichrus, among other breaches.

When the Environment Protection Authority (EPA) invited me in to show them the breaches the Forestry Corporation kicked me out of the forest. It took until January 2019 for the EPA to issue a meaningless official caution for not marking the boundaries of ten Melichrus exclusion zones and using machinery in them.

The EPA also gave them a warning letter for 30 habitat-tree breaches and Fisheries NSW let them off for not applying the prescriptions for the Endangered Purple Spotted



Alan Roberts and Dailan Pugh were among those who locked on to a log loader in March this year in an attempt to force the Forestry Corporation to identify and protect koala high-use areas in Gibberagee State Forest. Photo Jimmy Malecki

Gudgeon (here and in numerous other operations) on the grounds of a bureaucratic stuff-up.

When we returned in October 2017 we found similar offences continuing. The Forestry Corporation had again failed to mark the boundary of a Melichrus exclusion and constructed a road and log dump within it.

In April 2019 the EPA fined the Forestry Corporation \$16,500 for this repeat offence. The EPA gave them another warning for more habitat-tree breaches.

No other choice

So when we found the Forestry Corporation were not adequately protecting habitat trees and logging important koala habitat in another part of Gibberagee in March 2019, and that they were not looking for and protecting koala high-use areas, people occupied the forest and someone locked on.

We left when the Forestry Corporation agreed to have a site inspection with us to be

shown the numerous breaches we had found. A week later they reneged and refused us access.

We went back and found that while the EPA were in the forest investigating our complaints the Forestry Corporation had continued to log koala high-use areas. So we had another action, with four of us locking on to the log loader.

The Forestry Corporation suspended logging, though repeatedly refused our requests to be allowed to undertake surveys for koala high-use areas using a koala-scat-detection dog.

We undertook an afternoon of manual inspection and found a koala high-use area occupied by a male, female, and joey in an area yet to be logged.

In the end the Forestry Corporation protected a single hectare of this koala high-use area – only a fraction of one territory among a large population across the 467ha logging area. They agreed to abide by the requirement to retain five koala-feed trees per hectare elsewhere, and resumed logging koala high-use areas in May.

Our koalas are in real trouble and the most urgent necessity is to identify and protect important occupied habitat, such as at Gibberagee.

It will once again be all over by the time the EPA finish investigating.

■ Dailan Pugh is a member of the North East Forest Alliance.

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What is Zero Emissions Byron all about?

Christobel Munsson

We all know there's a climate crisis. We've heard that globally, we have less than 18 months to start to reduce our carbon emissions or risk a massive negative impact on our way of life.

So what's Zero Emissions Byron actually doing, then?

Our aim is to cajole, educate, promote, encourage, or otherwise provoke residents of our Shire into learning what we can each do to reduce our emissions to zero by 2040. And then doing it. (Read all about it in the ZEB 2018–2019 Annual Review at zerobyron.org.)

How do we do that? Well, we are an entirely volunteer and unfunded group, now registered as a charity. With only limited resources, what we can do (à la Greta Thunberg) is to make a big fuss. So each year we stage public events to raise awareness.

Last year it was the Climate Council's Professor Will Steffen's wake-up call at Byron Theatre: THE BIG U-TURN AHEAD, Calling Australia to Action on Climate



Saskia Horseman is believed to be the first person to pass a NSW driver licence test in a fully electric vehicle, this BMW i3. Photo Jeff 'Electrified' Dawson

Change. He provided a scarily convincing summary of the facts and figures of the climate crisis we're facing. His filmed presentation is available on our website.

This year we held the Northern Rivers EV Forum at the Cavanbah Centre, focusing on the massive potential of electric vehicles to reduce carbon emissions by around 40 per cent per household. As well as a display of the latest EVs available, a series of experts set the scene for what's currently happening

in the industry.

ZEB focuses its activities on five sectors: Transport, Energy, Land Use, Waste, and Buildings. First, we calculated the baseline data on each. That is, the actual amount of carbon our Shire emits in each of those sectors. Then, working with stakeholders in those sectors, we're finding the best ways to reduce their emissions.

To find out more about ZEB, please check out @ [zerobyron](http://zerobyron.org) or zerobyron.org.

Shed your preconceptions and repair

Aslan Shand

Rethinking our attitude to what we use and how we use it is one of the fundamental shifts we need to make. The Shedding and Repair Cafe movements are just two of the ways helping people change.

Shedding

The Mullumbimby Community Shedding Workshop and Repair Cafe are both there to provide advice and teach people the skills to fix rather than throw away, to reuse or repurpose what they have to hand.

'The Shedding Community Workshop follows the sustainability ethics to both utilise recycled materials within the workshop as well as emphasise the role of each student, to harness their own hands-on skills,' said Mullum Shedding Workshop founder Sophie Wilksch.

'They are also encouraged to work with recycled materials outside of the workshop environment and within the wider community. We love creating a closed loop, and rediscovering the potential of what we have labelled "rubbish"'

You can find out more about

the Shedding Community Workshop on their Facebook page or call 0490 501 745.

Repair with love

If you need some advice and a hand to fix something then the Repair Cafe in Mullumbimby runs every Saturday morning from 9am till noon. Whether it's a few stitches or perhaps a little carpentry that's required they are prepared to repair pretty much anything.

They can be found at the Byron Community College, cnr Burringbar and Gordon Streets, Mullumbimby.

Partying with the planet

Aslan Shand

The Northern Rivers is known to host a few festivals from the Mullum Music Festival and Bluesfest to Falls and Splendour. It is with the help of many hands and the passion of local change makers like Sasha Mainsbridge from Mullum Cares that they have been at the forefront of making festivals sustainable.

'People often assume that waste is generally sorted but it often isn't, as it takes time and money to sort waste, so often it just goes straight to landfill,' said Ms Mainsbridge.

Mullum Cares has been a dragon force behind the wash stations for plates and

cutlery that were introduced at the Mullum Music Festival (MMF) last year.

'Glen Wright (founder of MMF) is prepared to make it truly sustainable. We introduced the wash station in 2018 and this year we will be completely sorting through their waste,' she explained.

'B-Alternative have been engaged by Splendour this year to sort and manage their waste. They will be sorting it up in the campground. They did it at the last Falls Festival in Lorne (Vic) last year and achieved a 30 per cent decrease in waste and they are hoping for a similar result at Splendour.'

As festivals embrace managing their own waste and their impact on the environment B-Alternative director Jace Rahilly says that there is 'the potential for events to have a positive change on the world. Rather than partying against the planet we can party with it!'

B-Alternative were able to divert 27 of the 116 tonnes of waste from landfill at Falls in 2017/18 and increased this to 38.8 tonnes diverted from the reduced overall waste of 83.9 tonnes in 2018/19.

'Our aim at Splendour is to repeat these percentages and increase behaviour change to echo into the community,' said Mr Rahilly.

How I learned to stop worrying and love climate change

Mandy Nolan

The biggest threat to the planet isn't fossil fuels. It's fossil fools. Or as they are more commonly known: climate-change denialists.

They're dangerous, and there's no amount of carbon offset that neutralises their impact. Unless you club them individually with a piece of wood. You have to offset them pretty hard. They're like cockroaches. When the whole world has burned to a cinder, there will just be climate-change denialists walking around going, 'See, told you it was bullshit'.

A little imagination

Like any good conspiracy theory someone had to concoct it. I imagine eminent physicist and Princeton professor William Happer, Donald Trump, and oil lobbyist Jim Inhofe sitting around one night at Trump Towers pulling a few bongos going, 'this whole environment thing is bad for business... renewables suck... too much grid sharing – people can't generate and share power – that's socialism!'

Then one of them coughs out some smoke and says, 'let's say it's not happening!'

They fall on the floor laughing. Trump is clutching his furry orange belly. 'Let's say... the science isn't real.' 'Let me say that,' shouts



Donald Trump – here's laughing at you...

Professor Happer... he doesn't have his pants on. 'I'm a scientist. They'll believe me!'

This makes Trump wee himself just a little with excitement. Jim says, 'I'll take a snowball into the senate... to prove it still gets cold – that shit really confuses dumb people!'

They all sit around high-fiving each other, then Trump's face is serious for a moment. He says, 'I'll save us seats on the rocket out of

here when we go to Earth2'

Nothing to see here

Climate-change denialists don't believe we're in trouble. They say the climate's changed before. They say that Antarctica is gaining ice. That extreme weather isn't caused by global warming. That sea-level rises are exaggerated.

They don't believe the science that says we're screwed. Denialists basically believe that someone has

made up the whole climate-change thing to sell solar panels. And wind turbines. Because someone out there is really profiteering from this whole end-of-the-world thing. We just can't work out who that is.

The scariest thing about climate-change denial is that it's created and endorsed by people who actually know it's bullshit. It is a conversation disruptor.

Climate-change denial is clever, self-perpetuating conspiratorial 'it's

a hoax' style propaganda for the fossil-fuel industry so they can stay operational until corporations work out how to make renewables pay the same kind of dividends oil does.

You hear of coal barons. Oil barons. You don't hear of solar barons. Wind-farm barons.

Facts aren't relevant

Climate-change denial has nothing to do with facts. It has to do with people's desire to be unrelenting in their beliefs. In their capacity to resist change. In not wanting to admit that we human beings and the way we have lived life on Earth are about to kill life on Earth. We are the amoebas in a petrie dish, shitting and fucking and breeding until we're extinct.

Denial is the classic response of any addict. In this case we have a culture hooked on fossil fuels and consumption so, rather than change, the strategy is to pretend it isn't happening.

I find putting your fingers in your ears and going la la la helps. If you're in a coastal property that's about to be inundated, just put on some floaties and tell yourself it's normal.

The funniest thing about climate-change denial is that it doesn't matter how much they deny the science – right now and in the very near future, shit is going to get very bloody real.

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Been thinking about going off the grid? Here's some firsthand advice

Eve Jeffery

Thinking about going off grid? 'Do it!', says local filmmaker David Lowe.

'Being responsible for your own power (and water, waste, food etc) is a beautiful and life-affirming thing,' says Lowe. 'In terms of solar power, I've been living this way for over ten years.'

Lowe is just one of a growing number of people who are using the sun to power their lives by living off the grid or using grid-connected solar power.

In his case the system consists of 20 panels generating a maximum of 3.6kW.

'That's small by today's standards, but it was large back in 2008 when it was installed.'

Get the right inverter

The panels work in conjunction with 24 lead-acid batteries supplying 48V, which is converted into 240V by an Australian-made inverter.

'One key variable is the type of inverter used,' says director of Juno Energy, Patrick Halliday. 'It could be a string inverter, an inverter with power optimisers, or micro-inverters (which don't require a main inverter). In the past European inverters were considered the best option. Today, we understand that in order to maximise performance, the best alternative is optimisation or micro-inverters, because they enable each panel to perform at its maximum capacity.'

A little thought goes a long way

Lowe says his is the kind of system that 'happily powers a standard fridge, washing machine, water pump, computers, toaster,



Local filmmaker David Lowe went off grid in 2008 and hasn't regretted it for a day.

Photo self portrait by David Lowe

power tools, and an electric lawnmower etc – as long as you don't turn everything on at once.'

Lowe says the key thing about living this way is that you have to work with nature. 'You need to be aware of what the sun is doing, and modify your plans accordingly. Most days the batteries will be recharged quickly and there will be excess power. For prolonged grey periods you need to budget your power and conserve energy, or have a backup generator.'

Lowe says house batteries still have a few sustainability issues, and are expensive to replace, but the technology is evolving quickly, and solar panels are now much cheaper and more efficient than they were in the past.

households will do well with 6.6kW of solar with a 5kW inverter as this is generally the largest size that the network provider, Essential Energy, will allow to connect to the grid for exporting power.

An affordable system

'Larger systems may be installed but need to limit power output once the 5kW limit is reached. To get a good-quality system with local support and good hardware, the cost range is from \$5,000 to \$8,000, depending on component brands and quality.'

'These systems will provide about \$1,500 to \$2,000 in benefit to the household depending on power use patterns and the plan from the electricity retailer.'

Currently households and small businesses across Australia that install a small-scale renewable energy system (solar, wind, or hydro) or eligible hot-water system may be able to receive a government benefit under the Small-scale Renewable Energy Scheme* (SRES) to help with the purchase cost.

Lowe has no immediate plans to upgrade to the latest technology. 'You don't need the latest or most expensive tech to live well with off-grid solar. Old-fashioned liquid acid batteries are big and heavy and need to be topped up with water, but they also do the job, and are recyclable at end of life.'

The key benefit of off-grid solar, apart from no power bills, is that you become a lot more aware of what you're using, and what the natural world is doing, and that can only be a good thing.

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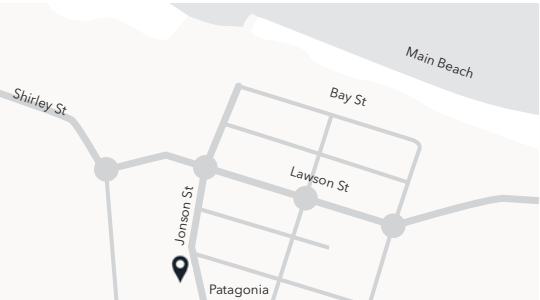
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Re-imagining transport in the modern age

Aslan Shand

I was seriously surprised when my great aunt Margaret told me she used to cycle from where she was stationed in Cambridge (UK) during the second world war to visit her fiancé in a nearby village called Hilton. At a distance of 26 or so kilometres it is a good half-hour drive and while I was used to cycling around the city of Cambridge at that time, with babies on the back of my bike, the idea of cycling the distance I'd just driven to visit her seemed a wee bit too challenging for me.

But times have changed and much like our transport and internet we expect the world, and ourselves, to move a lot faster, achieve more, and have more than people of my great aunt's generation. But perhaps that is exactly what has to change today.

Perhaps we need to remember to take our time to get there, take our time to enjoy being there, and not expect that more, faster, and bigger is always what we need or should be seeking. Maybe now is the time to take advantage of technology to slow down and actually enjoy what we have.

Cycling distance

From Mullumbimby to Byron Bay is around 20km; from Bangalow to Clunes is 18km; and Murwillumbah to Uki comes in at about 13km. These are the distances via the current road infrastructure, but with fossil-fuel-based transport one of the biggest emitters of carbon, rethinking how we approach transport is one of the more obvious ways to reduce our impact on the environment at a local and national level.

From legs and pedal bikes to solar bikes, electric, and automated vehicles, we are currently at the forefront of re-imagining transport. It is the use of park-and-rides at the outskirts of towns with EV shuttle buses and vehicle rentals, car-share services like the recently launched PopCar service in Byron Shire, and building the right infrastructure between regional hubs that will create the opportunity for a greater range of



transport modes to take fossil-fuel vehicles off the roads.

New connections

'We will see more and more purpose-built light electric vehicles becoming available and to facilitate the uptake of this we need to rethink our infrastructure as communities,' says Luke Young, founder of Sunshine Cycles in Byron Shire.

'A series of interconnecting purpose-built bike and light electric-vehicle corridors between hubs and communities would be vital to enable people to develop new ways of commuting. Developing the infrastructure for corridors with maximum speeds of say 50km/h and maximum vehicle weight of around 150kg would be awesome.

'This would begin to allow a new way for these short trips to take place. Bikes and e-bikes offer lightweight, fun, healthy transport options and are perfect for inner town and community centres as well as short trips.

'There are all manner of share vehicles for whatever your needs, from two-seat buggies with luggage capacity to scooters and other inventive options. Councils need to see the benefit of these types of infrastructure and realise that it will be a cost saving in the long run.'

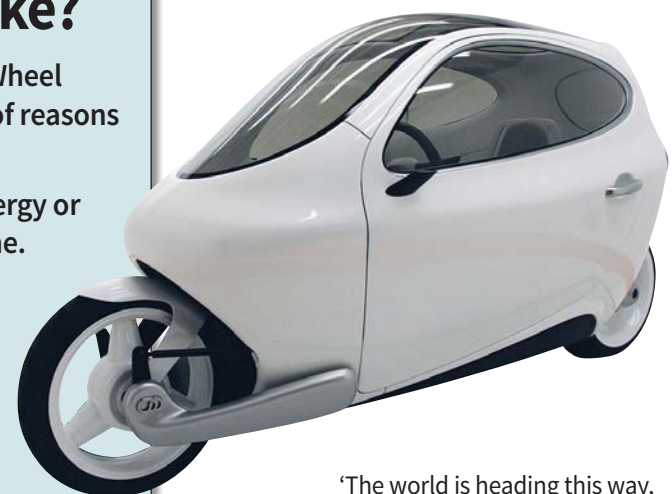
National infrastructure

Giles Parkinson, editor of RenewEconomy.com and the-driven.io, agrees and says that

Why use an electric bike?

Local bike enthusiast and owner of True Wheel Cycles Dave Martin says there are plenty of reasons to invest in a solar bike:

- You can better control the amount of energy or grunt you want to expend at any one time.
- They make hills easy!
- When you arrive at your destination you're not hot and sweaty.
- Carry large loads effortlessly uphill and in headwinds.



'electric vehicles (EV) are on their way in a big way'. Parkinson is predicting that prices will soon come down and that the focus of future transport should be on infrastructure and education.

'People are really interested, and many are already deciding to hold on to their current petrol and diesel cars a while longer until they see an EV they like and can afford,' said Mr Parkinson.

'For infrastructure that means a co-ordinated plan to make sure that we have enough charging stations across the country, from super-fast chargers for people travelling long distances and in a hurry, to regular charges at "destinations" like hotels, restaurants, cafes, and retailers, and in the general community. And we also need to make sure that the charging at home – which will account for most of the charging – can be co-ordinated so it doesn't all happen at the same time, and can actually

benefit the grid rather than be a problem.

'It would be great if the federal government were involved, but this lot are useless, so we have to look to state and local governments to fill in the gaps. Thankfully, they are starting to do so,' he said.

Increasing range

'The education program comes simply from helping people understand what an EV is and how it is charged. It's relatively simple, but it's kind of like that transition from fixed lines to mobiles, and typewriters to laptops. We need to make sure people are not daunted by the unknown.'

Electric vehicles often now have a range between 260km and 400km, ensuring most people wouldn't have to stop to top up during their average day of zipping around.

'This is pretty exciting stuff,' says Parkinson.

'The world is heading this way, and it is time Australia caught up.

'We are the only country in the western world not to have fuel standards, so we get poor-quality petrol and diesel, and that causes us to burn more fuel and that adds about \$600–\$900 extra per car each year. And we are killing as many people with lung and other health problems as we are killing and injuring on the roads.

'It's quite ridiculous. Let's get on board – it's going to be cleaner, cheaper, healthier, and more fun to drive. Why wouldn't we?'

I'm not quite ready to go for some of the new tiny car options that are coming onto the market in Byron Shire, owing to the fact they'd need to be 4WD to make it out of the potholes. However, I'm beginning to realise that if my great aunt could do a 26km ride on an old bump-and-grind bicycle then perhaps these distances aren't so unachievable if the right infrastructure and transport options are planned for and put in place.



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You're walking on water

Story & image Charles Boyle

For most of us the simple act of filling a glass of water depends on a complex infrastructure that is expensive to maintain, environmentally destructive, and toxic. A glass of water requires the damming of rivers, kilometres of pipes, pumping stations, chlorination, and fluoridation. While for rural residents, water collection means filtering pathogens and storage in poly-plastic tanks that degrade under UV light to eventually become more plastic landfill.

A simple alternative to unsustainable water systems lies right beneath our feet: it's groundwater – clean, filtered water stored in nature's huge underground water tanks. Using groundwater is simple, sustainable, and environmentally friendly.

Tip of the waterberg

Creeks and rivers are the tip of vast hidden waterbodies that extend far beneath the soil surface, where rainfall is collected and stored in rock fissures and cavities in underground aquifers. Every storm and flood replenishes this groundwater – and 98 per cent of the world's liquid fresh water is stored in groundwater aquifers.

In rural Australia groundwater is often the only water available for

towns, agriculture, and mining. But if groundwater extraction exceeds the rate of replenishment, reserves disappear – so the system requires careful management.

Controlled domestic use of groundwater is sustainable, but uncontrolled commercial harvesting lowers the water table, damaging vegetation and ecosystems. As always, commercial plunder of resources inevitably leads to environmental degradation.

When it's gone – that's it!

Groundwater is not to be confused with artesian water, which lies in deep aquifers up to a kilometre underground, and is not replenished by rainfall.

As artesian 'fossil water' aquifers are drained, the water level falls until it is gone or is too deep to reach. The depletion is permanent and poses a serious threat to the future of arid-land settlements and agriculture in eastern Australia that all rely on water from the Great Artesian Basin.

However, mining uses far more artesian water than all other industries combined, and international operations like Olympic Dam (the world's biggest uranium mine) and the proposed Adani coal mine are draining artesian water at an unprecedented rate.



Olympic Dam alone uses 40 megalitres (40,000,000 litres) every day, while the Adani mine plans to extract 150 megalitres (150,000,000 litres) a day. When the artesian water is gone, it's gone forever – and the world's driest continent will be even drier.

Replenishing water

Unlike artesian water, shallow groundwater is replenished by rainfall and its use is sustainable, if managed carefully. A high annual rainfall makes the Northern Rivers an ideal place to use groundwater: here a shallow bore with a solar pump can permanently drought-proof most local properties.

Water NSW manages the state's groundwater reserves and monitors all groundwater bores. Anyone

When the artesian water is gone, it's gone forever – and the world's driest continent will be even drier

We need natural gas, but wouldn't it be simpler to source it from the ground beneath us than to rely on massive pipelines, super-tankers, refineries and ports – the incredible technology that gets LPG to our kitchens? Much of our natural gas comes from the Cooper Basin in the Simpson Desert – irreparably damaging ancient desert aquifers – but it's out of sight, out of mind.

Local gas extraction makes sense – but only in theory, because we know that fracking poisons underground aquifers. If gas extraction were allowed to operate locally on the condition that water reserves were not damaged, resource companies would definitely develop a more sustainable approach – even if it meant reduced profits.

Our future survival depends on reclaiming control of our essential infrastructure from faceless corporations who are plundering our precious resources for short-term profit.

It makes sense to source our food, water, and energy needs locally. If you truly want to build a sustainable world, what better place to start than your own backyard?

wanting to drill a bore needs to apply to Water NSW for a licence and become part of the management system.

Groundwater bores are simple and cheap to sink, taking about two days and costing less than two large water tanks. Water flows of 10–20 litres/second are common at a depth of twenty metres, but it is important to get the water laboratory tested for potability and mineral content.

Local responsibility

The decentralisation of essential resources shifts the responsibility for their management to local communities, encouraging demand for sustainable resources and accountability from the companies managing them.

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Australians driving change in ethical investing

Aslan Shand

The climate crisis is biting, and while the Australian government continues in a state of denial about the overwhelming evidence that they need to take action fast, business and individual investors are moving to secure their own finances and futures.

‘Both ethical and financial impacts of climate change have led to large divestment from fossil fuels over the past five years and this is continuing,’ says Hope Evans from Simply Ethical Advice.

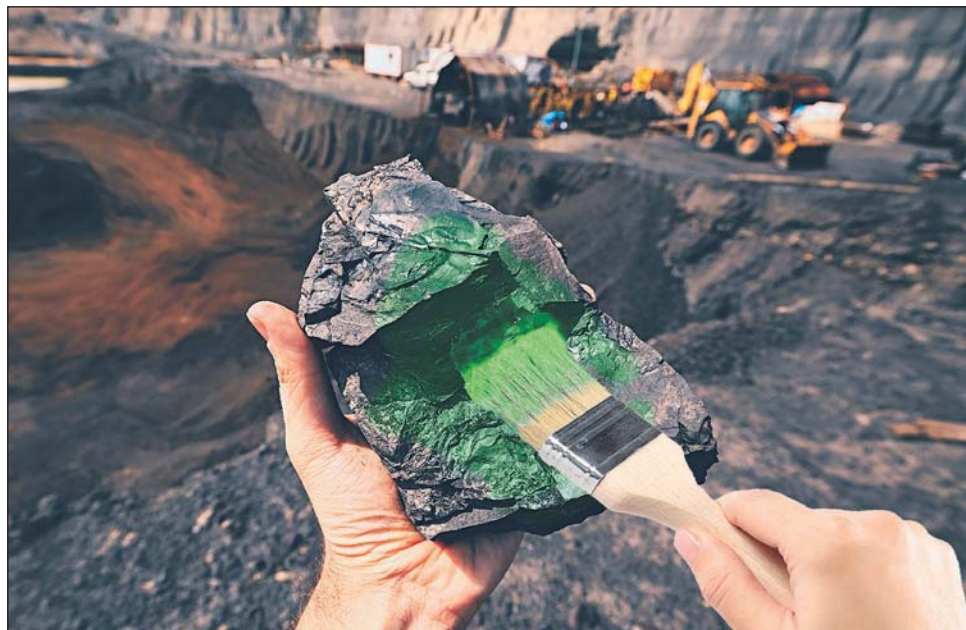
‘We expect to see a large amount of stranded assets in Australia as huge sums of money are invested into mines such as Adani. However, the coal will not be sold or not sold at a profit and so the assets will be stranded or abandoned.

‘China and India are moving quickly away from burning coal so it is really sad that we may dig up and destroy large areas of habitat for nothing in Australia.’

Values driving choice

As a result of both the need to manage risk for businesses in relation to the escalating climate crisis and the drive from investors who realise that the future has moved away from investment in fossil fuels there is an increasing demand for ethical and sustainable options.

‘There has been a huge increase in interest and demand from millennials. A recent study found that 84 per cent of millennials expected their ethical considerations to be a main driver in their investments,’ says Ms Evans.



‘Millennials are twice as likely to buy a product if it has sustainable credibility and 73 per cent will pay more for a product that is sustainable. As we see the wealth shift from baby boomers to the newer generations the pressure will increase for investments to perform socially and environmentally as well as financially.’

Graeme Herne from Summerland Credit Union agrees, pointing out that ‘People are becoming more and more informed these days and look at the values of the financial institutions they deal with. This is especially true following the Royal Commission into the financial industry. People are willing to pay a little bit extra for a service and product that is ethical and sustainable.’

Greenwashing

However, Ms Evans warns that, along with the increasing options for ethical and sustainable investments entering the market, there has been an increase in greenwashing that investors need to be aware of.

‘The range of ethical investment options available has increased a lot in the last ten years and is becoming more mainstream. In my opinion there are some fantastic options available now for investors; however, there is also a lot of greenwashing occurring,’ she said.

Lack of standards

‘There has been a great deal of new “ethical” or “eco” investment options brought to

consumers both in superannuation funds and outside super in the past five to ten years. As there is no standard or certification as to what you can call ethical, eco, or sustainable, a fund may consider an issue such as fossil fuels or labour standards in their portfolio construction but they may not actually exclude fossil fuels or act on information they consider. It can be difficult for the average investor to really dig down and understand the difference.’

A little guidance

There are resources out there that can help investors who are trying to see beneath the greenwash, like the Responsible Investment Association Australasia Fact Sheet: www.responsibleinvestment.org/resources/benchmark-report/ and the free Ethical Fund Rating Tool: www.ethicaladviserscoop.org/ethicalfundratings.html for consumers that rates funds on scale of 1–5 based on in depth analysis done by The Ethical Adviser Co-op.

Growing opportunity

‘I think now there is a huge opportunity for business and social enterprise to step up with solutions where our government is lacking in leadership,’ says Ms Evans.

‘Areas like renewable energy, affordable housing, employment for young people, water efficiency, sustainable farming, and food security. All the good stuff! The things really that need to be done to ensure future generations can live a decent life. As it stands now it looks like it will need to be done by business and social enterprise in Australia.’



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Showcasing Byron Shire Council's Sustainability Projects

Council put the Net Zero Emissions Strategy for Council Operations 2025 out for public comment this year. We had fabulous feedback and one great suggestion was, "tell the community about all the great things Council is up to in sustainability". So we are taking this advice and you will start to see many of these projects pop up around the Shire.

In the last 12 months many projects have been completed and many others commenced. We hope that you will be as proud of these projects as the Council team is.

Council's Plan for Getting to Net Zero Emissions



The Net Zero Emissions Strategy is the roadmap for Council to address the Climate Change emergency, to achieve net zero emissions for Council operations by 2025 and source 100% renewable energy for operations by 2027. The Strategy was developed through collaboration across Council, community and stakeholders and guided by Council's Sustainability and Emissions Reduction Advisory Committee. The draft Strategy was on public exhibition for six weeks from 27 February - 10 April this year and the final version will be complete by the end of June 2019.

For more information go to: www.byron.nsw.gov.au/Services/Environment/Climate-change/Mitigation/Reducing-Councils-emissions

Solar Carpark in Mullumbimby



Tweed Company, SAE Group has been engaged to build a 99kW solar structure in the public carpark adjacent to the Council administration building at 70 Station Street, Mullumbimby. The structure will be located at the southern end of the carpark and will cover approximately 40 public spaces. Importantly, the solar PV system will provide approximately 20% to 25% of the administration building's daily electricity consumption, and is a demonstration on just how committed Council is to sourcing 100% of its power from renewable sources.

Council will also be installing a Level 2 EV charger to assist those in Mullumbimby to charge their electric vehicles. This new EV charger will be powered by the new solar carpark.

Construction is due to start in July 2019, and be completed by the end of August 2019. For more information on the solar carpark or alternative parking options go to: www.byron.nsw.gov.au/solarcarpark

Community tool to check solar suitability - coming soon to Byron Shire

Council has partnered with the Australian Photovoltaic Institute (APVI) on its online mapping and analysis tool called SunSpot. This tool allows households and businesses to estimate the size, cost and overall suitability of a solar PV system for their roof top (see example image of tool below). The Byron Shire community will have free access to the tool and users will have the ability to upload their own load data (or select a load profile from the database) and then work out how much they'll save on different tariffs. This information and analysis can be used to help Council, businesses and residents make the decisions about whether the location is suitable for solar PV investment. SunSpot will be available on the Council website - free of charge to our community - in the second half of 2019.

To see how SunSpot works go to: <https://pv-map.apvi.org.au/sunspot>



Other projects that will help Council achieve its sustainability goals include:

- The Dingo Lane, Myocum 5MW solar farm due for completion in 2021.
- Bioenergy project to be completed in 2021.
- Solar PV at the three sewage treatment plants in Byron Shire due for completion in 2020.
- Sustainable Events Toolkit - launching in late 2019.

For more information go to www.byron.nsw.gov.au and search for all the projects.

Byron Shire Council Solar Carpark 2019

Council Administration Building, 70 Station St., Mullumbimby

Byron Shire Council is committed to achieving 100% net zero emissions for Council operations by 2025, and sourcing 100% of Council's energy needs through renewable energy by 2027. The Mullumbimby Administration Building Solar Carpark will directly contribute towards achieving these goals. Please pick up a pamphlet from Council or look online for further details on the project.

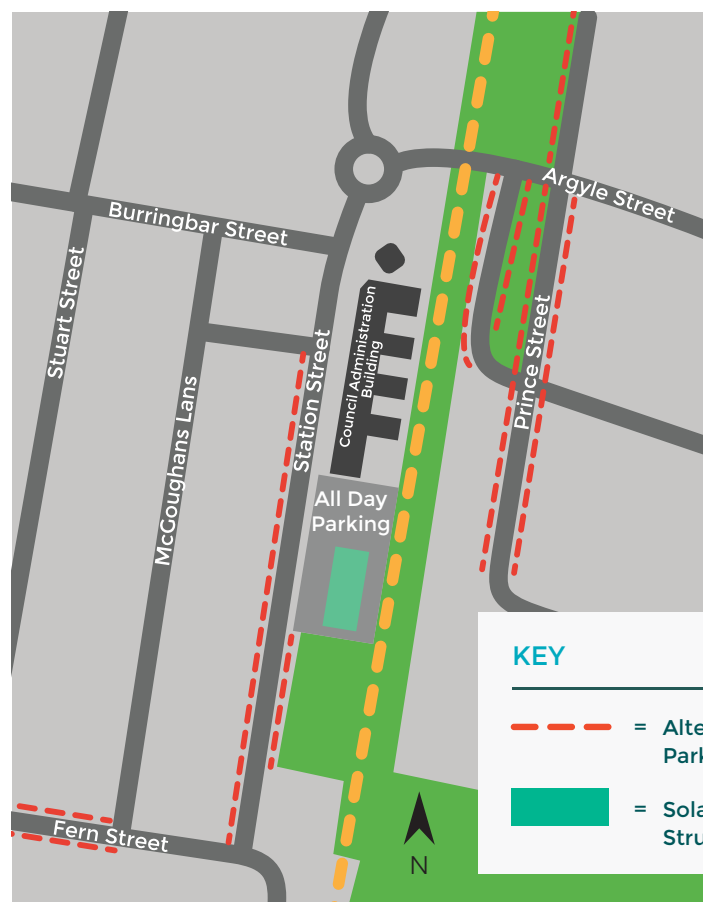
The construction of the solar car park will occur in three stages:

- 1. First 2 weeks of July 2019.**
Minor preparatory civil works. Some car spaces will be unavailable for this period.
- 2. 16 - 22 July 2019.**
First major works stage. Some car spaces will be unavailable for this period.
- 3. 29 July - 15 August 2019.**
Second major works stage. Only 50 car spaces will be available during this period.

Further Information And Contact

For more information and progress updates visit Council's website: www.byron.nsw.gov.au/solarcarpark

Contact Council's Sustainability and Emissions Reduction Officer sustainability@byron.nsw.gov.au, P: 02 6626 7295



Visit: www.byron.nsw.gov.au



Never mind the election: change the game!

Cassandra Sheppard

Okay, so the 2019 federal election was supposed to be the 'climate election'.

It's a shame that it wasn't, but all is not lost: entrepreneurs are forging ahead to clean up the climate anyway. Why? Because green is good and it's the future!

One example of a Byron Bay innovator leading the way is Enova Community Energy, which made history when it was established in 2016 as Australia's first community-owned energy company.

It's not just good business; it's also good for communities.

Doing energy differently

Enova set out to do energy differently from the start. Its core mission? To enable towns, cities, suburbs, and regions to power themselves using renewable energy.

Enova CEO Felicity Stening said the push of the local community was central to the formation of Enova Community Energy three years ago.

'People who live in the Northern Rivers region care about rising carbon emissions; they're worried about the climate crisis and they want to do something about it.'

Enova is the outcome of that demand for a new kind of energy enterprise.

'Our mission is producing energy that is clean, affordable, and that gives back,' said Ms Stening. 'We provide power to both home and business customers who don't have solar panels of their own, as well as those who do.'



Market disruptors

'We are here unapologetically to disrupt the energy market – the only energy retailer of its type in Australia. And it's working.'

Under its unique model, Enova Community Energy will return 50 per cent of profits (after tax and reinvestment) back to the community.

Three years after switching on its first customer, Enova has more than 1,600 shareholders, an impressive customer base, and plans to expand to other regions including Newcastle, Sydney, and interstate.

Creating jobs

It's created more than 20 jobs in the Northern Rivers and the economic benefits are flowing to many local suppliers and to the local economy: money in power bills that would otherwise be sent to the 'Big Three'

power companies in far-off cities stays circulating in the local economy.

Keeping money circulating in local towns, making them more resilient and sustainable, is all part of Enova's 'localisation' strategy along with the local generation, storage, and distribution of renewable energy.

Enova's vision is for everyone to be able to access renewable energy, regardless of income or housing status, by advocating for energy efficiency, energy audits, and engaging in partnerships and projects.

Cut emissions & costs

Some of Enova's community projects include a microgrid, solar gardens, and a solar housing project. Business owners and tenants in the Byron Bay Arts and Industry Estate have swung behind Enova's pilot microgrid project, being run in partnership with Essential Energy,

LO3 Energy, Wattwatchers, and UNSW.

Close to 30 building owners and tenants have signed up to trial the microgrid, which generates, stores, and shares renewable electricity among project participants.

The aim is to reduce CO2 emissions and cut power bills through local renewable energy that is generated, stored and shared in the industrial estate.

As an Enova 'solar gardener' you can buy a share in a solar garden and receive a credit on your power bill while building local solar-generation capacity.

Enova is also helping to cut tenants' power bills as a solar housing project partner with North Coast Community Housing and the NSW Office of Environment and Heritage.

Solar panels were installed at 28 houses which, along with free home-energy audits, aim to reduce individual electricity bills by as much as \$420 per year.

In another project Enova is working with Community-Owned Renewable Energy Mullumbimby (COREM) and Zero Emissions Byron (ZEB) to 'Repower Byron' – encouraging locals, street by street, to meet the Shire's objective of zero emissions by 2025.

Enova Energy is not just another energy retailer. It's a game changer, a social movement that is changing the way energy is generated, stored, and distributed at a local and regional level.

If you want to get involved in the new power generation, visit enovaenergy.com.au or call (02) 5622 1700.

■ Cassandra Sheppard works for ENOVA.

Shara Community Gardens

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Sasha Mainsbridge Founder of Library of Stuff

The Library of STUFF is a project of Mullum Cares, a local not-for-profit organisation that exists to promote and support the growing consumer demand for conservation.

Mullum cares

Animal futures: coastal and marine environments

Story & images Mary Gardner

Every animal alive today is the happy result of individuals raising young in an unbroken chain over millennia. The beneficiaries of the planet's first sustainability movement, they and their babies are now facing major climate disruption and threats of extinction. Exactly what can they do?

Some emigrate and resettle. The best estimate is that half of all animals are moving. On land, some have headed toward the poles at a rate of about 16 kilometres each decade since the 1960s. Others try going up to a cooler, higher altitude. In the sea, the shift each decade is about 64 kilometres as well as some six metres deeper.

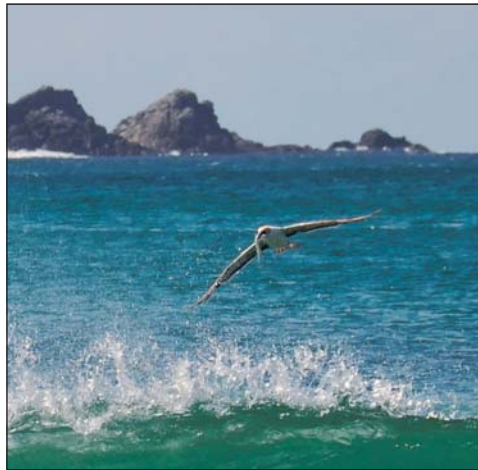
It's a diminishing feast

Mackerel now head to Iceland and the fishers changed their methods to catch them for market. Tuna are trying out different routes. In Tasmania, more reef fish such as wrasses, blue groper, and perch are now found in warmer northern waters. By contrast more invertebrates such as crayfish and sea urchins were found in cooler southern waters.

Already markedly fewer fish species are harvested in the tropics. More fish species are being caught in the subtropics and temperate



Citizen science in action: trainees at the WaterPlaces training course identifying water bugs. Right: a feeding gannet at Byron Bay.



zones. Marine heatwaves not only bleach coral but tax the heat tolerances of different fishes who simply must leave that area or die out. With the seafood supply changing, how will small fishing families manage?

Purity or survival?

Some coastal animals have a few other strategies. They switch their diet: certain coastal birds give up on shellfish and rely on worms.

Others mate with a partner from another species. Often the babies are capable of reproducing too. Arguments rage: should these be killed so a species such as the Hawaiian geese or New Zealand black stilts remain 'pure'? Or is the

genetic strength of such hybrids a new chance for these animals to survive? Hybrids of coral are one example of such hopefulness.

But many animals cannot make new homes or change lifestyles. Since 2015, millions of seabirds in the Pacific Northwest died, apparently of starvation. In the past few years, neither Californian anchovy nor sardines are found. Pods of orcas who only eat salmon are starving as the numbers of these fish plummet.

Death and starvation

Marine heatwaves have unexpected repercussions. Across our Australian Top End mangroves as well as coral reefs die off. From

the Torres Strait to Moreton Bay, seagrass withers and dugongs go hungry. In Western Australia, the happily promiscuous dolphins have changed their behaviour and for the past six years the number of births has dropped. Their overall survival rate dropped by 12 per cent.

Our migratory whales, like others worldwide, are getting fatigued and hungry on the return routes. They didn't have enough winter food. Their krill, found on the margins of sea ice, are declining.

Encroaching oceans

We people are caught up in these problems. We try to help. Artificial reefs are becoming favourite

sites for fish who move to new zones and need their own nook to call home. More people realise that for every centimetre sea-level rise, there's a 10-metre retreat of the coastline and losses for marine habitat. So 'living shorelines' and 'flood parks' are being created instead of sea walls.

Take a look around

One of the most important changes is long-term monitoring and often involves volunteers. They identify new arrivals in micro-habitats and micro-climates, all of which need new protections. In Hawaii they watch small coastal sanctuaries for protected herbivore fishes. On many shores, they build artificial nests for osprey, albatross, little blue penguins, and parrots. They photograph shifting beaches, test water quality, and count animals.

Every day people are reporting what is exactly happening. Recently, volunteers first raised the alarm about the decline in insects. A volunteer happened on the mass death of starved puffins. And volunteers are acting in Extinction Rebellion groups everywhere because change is also needed in government and business. Please join your neighbours in monitoring and supporting such rebellions.



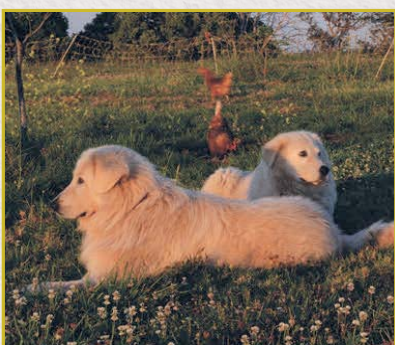
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Get the build right first – for you and the planet

Aslan Shand

How we build our homes to stay warm in winter and cool in summer can dramatically change how much we contribute to toasting the planet.

The world's population of humans is predicted to reach 11.2 billion by 2100. Housing all these people on an increasingly constrained planet means we need to get savvy about sustainable building now to reduce carbon emissions.

It doesn't matter if you are building flats in the city or a shed in the country; the materials you use and the choices you make will impact not only upon the carbon footprint of the building but also on the carbon footprint of the building's long-term use. So what are some of the key points to keep in mind?

Location, location...

Firstly, take a look at your local environment. It will influence how you orient your building and with what environmental constraints you need to work.

'Make sure that your home is designed appropriately to the local climate – in northern NSW, minimise summer sun and maximise winter sun,' says Renew spokesperson Sasha Shtargot.

'Solar passive design is very important – a passively designed home makes the most of natural heating and cooling to keep its occupants comfortable year round. The orientation of a house, spatial zoning, thermal mass, ventilation, insulation, shading, and glazing are the seven core components of passive design.'

Thinking ahead

'Make sure your home is designed for the long haul,' says Sasha, 'and that its



A green living wall on a hotel in London. Photo Vera Kratochvil

materials are durable and able to be easily re-used or recycled. When designing your house, think ahead: over time will your family grow, will it shrink, or stay stable?

'How will your health impact upon your needs in 10 or 20 years? With these things in mind, you can design a house that not only meets your current needs but also can adapt without needing extensions or renovations.'

Size matters

On average Australian houses are the biggest in the world and the more space you have the more heating

and cooling you need to provide. By thinking about what your needs are and building appropriately you reduce your environmental impact and energy use, and save money on bills.

In fact there are many people who are now inverting the concept of big is best and seeing how much they can fit into a tiny space.

'Tiny homes are gaining in popularity,' explains Sasha.

'They cut your environmental footprint, potentially provide freedom from debt and open up mobility – when you get the urge, you can just move on if you have a tiny house on wheels.'

Water saving tips and challenges

There are lots of ways to save water says Rous Water, including installing:

- A water tank
- Hose triggers
- Dual-flush toilets
- Rain-sensitive garden
- Water-efficient taps and showerheads

Do you have other suggestions and ideas?

Get involved in the 160 Litre Challenge by photographing or videoing your unique ways of saving water. Find out more in *Echo* netdaily: www.echo.net.au/take-160-litre-challenge-world-water-day.

A decent lining

The classic colonial Australian house, often referred to as the Queenslander, is designed to let the air flow through with open windows, verandahs, and no insulation. But the reality is that Australia is not a country where the temperature is a perfect balmy 27° all year round.

It is in fact a country that has extremes of heat and this is only

going to increase as the climate crisis gets worse. So a few tips from cold countries where they need to keep homes balanced against the environment are handy – most importantly, insulation.

It isn't just the roof – you can insulate walls, floor, and use double or triple glazing for windows and doors. This way you are keeping the heat or cold outside and more effectively managing your internal building environment without resorting to heavy use of heaters and air-conditioners.

A green roof or green walls are another effective way to insulate a building.

They filter water and help create environments for insects and small animals in cities and towns, as well as a handy veggie patch in the house.

Green roofs have now been mandated in a number of European countries. For example, in the Austrian city of Linz this applies to all new residential and commercial buildings with rooftops larger than 100m². From 2015 France has required that all commercial buildings be partially covered in plants or solar panels.

Think outside the box

Sustainable building materials are key and while timber might seem to be a good means of renewables it can come at a significant environmental cost.

'Earth building materials such as rammed earth and mudbrick are good in many respects,' says Sasha.

'Regenerative materials including bamboo, straw (strawbales), and hemp are readily renewable. Concrete, most commonly in floor slabs, embeds thermal mass in passive design, but use eco-concrete, which replaces some of the high-embodied-energy

cement content with alternatives such as fly ash.

'Timber is versatile and attractive but can come with huge environmental costs. Use recycled timber if you can, and if not choose timber with a sustainability certification such as FSC.'

Future gold

That's right, it's water. As the climate changes and warms how we manage our water will be essential. It isn't just the cost of the bills but the actual availability of water that will be critical.

'Rainwater tanks are essential,' says Sasha.

'Deciding where they are located will determine their size and shape.'

'You may want to place tanks next to the house or shed, which makes water collection simpler and reduces pipe runs.'

'Consider installing a greywater system, take shorter showers, fix dripping taps, run the dishwasher and washing machine only when full, install low-flow showerheads, and mulch and improve the soil in your garden to hold water.'

There is plenty to think about whether you are building a new house or shed or retrofitting it for a sustainable future. From lighting and dripping taps to green walls and insulation there are plenty of ideas on how to begin saving energy and recycling materials for a more sustainable future.

For more information on sustainable housing, go to renew.org.au, a national, not-for-profit organisation that was set up in 1980 to advocate for sustainable building and communities.



Nick Alderson

Landscape Architect

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Awards announced Friday 15 November



TWEED SHIRE COUNCIL | Living and Loving the Tweed

What happens when global warming really gets going?

Positive feedbacks make it harder to slam on the brakes as we steam towards a hotter climate

Dr Willow Hallgren

Like a runaway steam train gaining momentum as it careens down a mountainside, scientists have warned that if we emit too many greenhouse gases, like carbon dioxide (CO₂) or methane, into the atmosphere, that we will reach a 'tipping point' where the climate will warm uncontrollably. If we reach this tipping point it will move us inexorably towards a doomsday scenario where extreme heatwaves and searing, interminable droughts are punctuated by category 5 cyclones, which demolish seaside homes and cause extensive flooding.

Some scientists have looked into whether this uncontrolled warming would eventually cause the earth to move into a new 'hothouse' state, which would be decidedly unpleasant not just for humans but for all life on Earth.

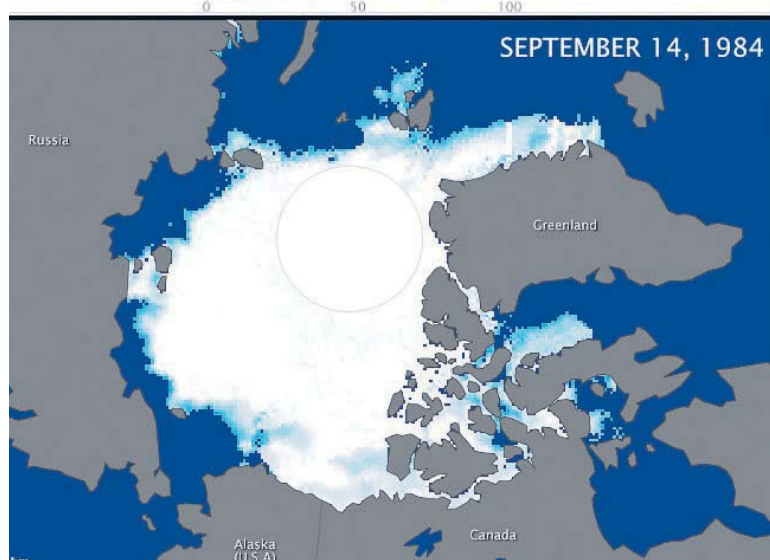
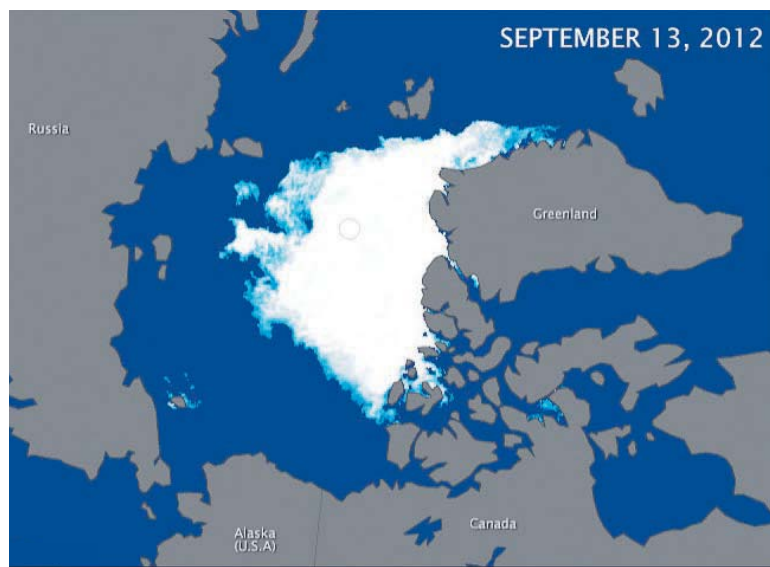
Just a lot of hot air?

But is this a realistic scenario? Let's examine some facts. The earth's climate is an incredibly complicated system. Many factors influence climatic conditions here on the earth's surface where we humans experience it, along with the rest of the world's other countless land-based life forms.

We all know that human activities emit huge amounts of greenhouse gases and this is causing atmospheric warming and climate change. However, what most people may be unaware of is that this warming triggers many other physical and biological processes. These act as accelerators (and occasionally brakes) to speed up or slow down our climatic steam train.

Is a little positive feedback a bad thing?

Processes that accelerate warming are known as 'positive feedbacks', and unfortunately there are many of them that have already been triggered by the warming we



A comparison of Arctic ice minimum in 1984 and 2012 demonstrating the reduction in Arctic ice over time. Image assembled from NASA Earth Observatory images by Jesse Allen.

have experienced so far. For example, higher air temperatures over the Arctic Ocean cause more of the Arctic sea ice to melt in summer. The ocean is darker than the ice, so more of the warmth from the sun is absorbed into the water, which heats the air some more.

Ice on the other hand bounces the sunlight back into space. Think of what the temperature is like inside a black car in summer compared to a white one. Other positive feedbacks involve changes to the ocean currents, the release of methane from the oceans,

and more water vapour in the atmosphere.

Climate 'time bomb'

However, one of the greatest dangers of continued global warming is the thawing of vast areas of frozen soil in places like Siberia and Canada. This would release enormous amounts of CO₂ and methane from the soil.

The fact is that permafrost contains around twice the carbon as the atmosphere; if released this could lead to catastrophic climate change. Some scientists have

labeled this a 'climate time-bomb'. The bad news is that the permafrost has started to melt in many places. Could this feedback be our one-way ticket to Hothouse Earth?

As we continue to emit more of these greenhouse gases, we are fuelling these positive feedbacks to our planet's – and civilisation's – detriment. Unfortunately, even if we stop emitting all greenhouse gases tomorrow, those that we've already emitted will stay in the atmosphere for from decades to centuries. This is why we must stop emitting greenhouse gases as soon as possible to avoid dangerous climate change, and to shorten the period of climate disruption as much as we can.

Save me, mummy

But what about the negative feedbacks that one can imagine our mother Earth might have evolved to save her good work from being destroyed by certain destructive and naughty children (that's us!) – can they help to slow down the warming and potentially save us from ourselves?

A potentially very strong negative feedback could result in an increase in clouds owing to higher evaporation as global warming progresses. Even small changes in cloud amount, location, and type could have large consequences.

More cloud cover can reflect sunlight back into space and cool the earth's surface. But not all clouds can help us – some types of clouds trap heat, so to predict the overall role clouds will play as the earth warms up is really hard.

Scientists are still not entirely sure if clouds are going to help or hinder our fight against climate change, although more and more evidence suggests clouds might become a positive feedback.

Plant, plant, plant

A more reliable saviour is plant growth, which can act as a negative feedback up to a point.

More carbon dioxide in the

atmosphere stimulates plant growth in places that have enough water and nutrients. Growing trees remove about half of human carbon dioxide emissions from the atmosphere every year and lock them up for decades, and potentially centuries.

Replanting forests will help stem biodiversity loss as well, and lead to higher rainfall and lower temperatures in many areas – a win on many levels.

However, in the sense that every problem has in it the seeds of its own solution, I would like to think that the most important negative feedback to global warming is the current exploding awareness of people all over the world that now is the time for us all to act, and do everything in our power to pull the brakes on climate change as hard as we can.



Dr Willow Hallgren is an earth-system scientist who studies the impact of climate change on ecosystems and biodiversity, the feedbacks between vegetation and the climate, and how policy can influence climate change, by changing how we use the land.

Willow has previously worked as a climate and biodiversity scientist in government, industry, and academic roles in both Australia and the USA at the Massachusetts Institute of Technology (MIT). She was also previously the Science editor of Monash University's student newspaper *Lot's Wife*.

She is a city escapee of many years now and is currently hiding out among the hill tribes of the beautiful Tweed Valley.

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Local councils taking action on the climate crisis

There is little real action on the climate emergency from the Australian federal government so it is being left up to the people on the ground to make real changes. Local councils are on the front line of managing resources and the environment and are in a position to implement practical on-the-ground changes to protect the environment, reduce greenhouse gas emissions, and plan for the impacts of the changing climate. This is what our local councils have been up to in the last year.

Tweed Council

Tweed Council are working towards a range of commitments to protect the environment. They're based on the three key commitments of minimising negative impacts on the environment; protecting the land, waterways, and wildlife; and responding to climate change.

Under the recycling and sustainability initiatives they've recycled plastic fibres into footpath concrete and recycled glass bottles into glass-sand and re-used and recycled excavated waste.

The Council has supported the breeding of the critically endangered Beach Stone-curlew at Hastings Point that has rarely successfully bred in Tweed.

Other community projects aimed at protecting and enhancing the environment have seen over 7,500 trees planted, 7ha of riparian vegetation restored, and erosion-stabilisation projects implemented.

The Tweed Shire Sustainable Living Home Expo helped over 600 locals learn how to reduce waste, become more energy efficient, and create more sustainable homes. This was complemented by the three-day outward-bound wilderness experience that 18 Tweed High School students participated in that helped inspire students to create change in their own schools.

The council has reduced its greenhouse gas emissions by over 840 tonnes over the last year, added 555kW of solar electricity generation, and made \$174,000 in annual electricity savings. Tweed Shire Council is committed to protect and enhance the Tweed's internationally significant environment and respond to the challenges of climate change.

One of the ways they're doing this is by generating renewable energy at Council facilities. Tweed is on track to produce 25 per cent of Council's electricity from renewable sources by 2022 and 50 per cent by 2025 (Renewable Energy Action Plan).



An endangered Beach Stone-curlew chick at Hastings Point, January 2019. Photo supplied

For more information on what Tweed Council is up to visit www.tweed.nsw.gov.au/Environment.

Lismore Council

Lismore City Council (LCC) has a strong commitment to sustainability and currently has many projects underway. LCC has set a target to meet all its electricity requirements from renewable sources by 2023, through their many energy-efficiency and solar-power projects. LCC has achieved a 23 per cent reduction in greenhouse gas emissions since 2010.

Under its Rural Landholder Initiative, Council has supported volunteers and landholders to plant thousands of trees and restore hundreds of hectares of habitat. LCC's approach is to build partnerships with landholders and rural industries to look after biodiversity. Landholders can apply for funding for habitat projects and attend regular field days.

Council also supports landcare and wildlife volunteers working in the urban and residential areas. Koala habitat, as well as riparian habitat along the Wilsons River and local creeks, are particularly important. Workshops and events to help residents in Lismore city and surrounding villages be involved in biodiversity conservation will continue to be run. These will include community days in and around the bushland reserves, educational events, and citizen science projects.

Lismore City Council has been a leader in minimising waste and getting the most

out of our precious resources. The Lismore Recycling and Recovery Centre is a regionally significant facility that incorporates recycling and resource recovery from different types of waste, green-waste composting, a Revolve Shop, Environmental Education Centre, and the Lismore Rainforest Botanic Gardens. Lismore City Council also collaborates with the other councils in the Northern Rivers region on the Recycle Right program.

Lismore residents interested in environmental sustainability and biodiversity conservation can contact the Environmental Strategies team on 1300 878 387.

Byron Shire Council

Byron Shire Council is preparing to start a solar-panel installation in the carpark next to its offices in Mullumbimby. The solar 'roof', covering approximately 40 car spaces, is expected to offset 20–25 per cent of the council building's daily electricity use. There will also be a Level 2 electric vehicle charging station installed for public use.

Council is also planning for a five megawatt solar farm on land next the Resource Recovery Centre at Myocum. This is expected to generate the equivalent amount of electricity to power 1,000 homes.

Recycling continues to be an important priority with recycled glass from Byron Shire being crushed and mixed with a quarry product at Lismore's Recycling and Recovery Centre and used to build the roadbase.

Council is also selling high-quality compost made from the Shire's garden waste. Three thousand tonnes of green waste a year

is now processed and can be used in home gardens, agriculture, urban landscaping, and land rehabilitation.

Last year's Butt Free Byron campaign was successful and included installing 100 Enviropole butt bins across the Shire. The butts are recycled and turned into things like park benches, office equipment and building materials.

Council implemented some actions identified in the draft Koala Plan of Management including the North East Hinterland Project, a Saving our Species grant-funded project with Tweed Shire Council that identifies, negotiates, and assesses properties for conservation agreements and secures high-priority/core koala habitat.

Ballina Council

Now more than ever, we all have a role to play in protecting the future of our environment. Ballina Shire Council (BSC) aims to enhance our natural environment through a range of initiatives, such as improving stormwater infrastructure, diverting waste from landfill, installing solar panels, koala management, and educating the community about their environmental impact.

Battery electric vehicle (BEV)s use electricity as their sole energy source and reduce CO2 emissions and other pollutants. In May, the council decided to purchase their first BEV as a pool car in their fleet, along with a charging station, as they move towards becoming carbon neutral.

BEVs need power and what better source than the sun? BSC's solar panel count is growing and now boasts eight solar-panel sites with a 514kW capacity. But they aren't stopping there; Council will look at developing more Council-owned solar-panel facilities. Ballina's new Indoor Sports Centre will also have a 55kW solar system.

BSC is tackling paper use and this year launched an eRates competition offering the winner a \$1,000 discount for going from paper to digital rates notices. They aim to reduce the 113,000 pieces of paper Council prints annually for rates and charges notices.

These sustainability efforts were awarded at the recent Local Government NSW Excellence in Environment Awards. BSC was acknowledged for their Asbestos Management Program, smart water-metering service, and the Love it or Lose it education campaign.

For more information on these projects or other Council sustainability, projects visit ballina.nsw.gov.au.

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Photo: Destination NSW



Power to the people: take the climate crisis into your own hands

Eve Jeffery

If you had to walk a kilometre to pump your water from a well, do you think you would be careful how many drops you used?

If you lived in Beijing would you value clean air, or in Brazil would you hug trees? What if your turnips grew in Chernobyl soil?

Across the globe people are suffering because of greed. It's as simple as that. You can argue about progress all you want (if I hear one more person ask me if I type my stories on a computer)...

The bottom line is we are too worried about the bottom line and this makes for easy nimbys – people who don't care if the air, water, or earth is damaged as long as it's not theirs – 'not in my backyard'.

Climate change has a planet-wide impact

But, it is in our backyard. The whole planet is our backyard and eventually, and not all that far into the future, what happens out of sight will see the extinction of many earthlings. Humans included.

A good example of this is the Great Artesian Basin (GAB). The GAB is under about 22 per cent of Australia but it's not near any major cities. Its eastern border is vaguely near Brisbane but the problem is



AGL operations in Gloucester. Photo Tree Faerie

it's invisible unless you are a geologist. Oh, or a farmer growing food for the nation, whose only access to clean water lies underground.

A crack in a coal seam gas well could ruin any current or future crops, causing widespread starvation, unless of course you are a politician on a huge salary or a retiree with a bundle of franking credits. Oh wait! You can't eat cash.

That's right folks, no matter how much you've got in the bank, you still won't be able to buy food if the farmers can't grow it.

Historic judgment

But the message still isn't getting across. How do you make people outside your bubble see what's about to burst it?

The small NSW town of Gloucester had a huge fight on their hands. They already had a coal mine yet an attempt to frack gas by AJ Lucas in 2004 ended in a win by the community over the subsequent owners AGI in February 2016.

Then, in February 2019, they ousted GRL's Rocky Hill Coal Project. Justice Preston said in his history-making judgment: 'The construction and operation of the mine, and the transportation and combustion of the coal from the mine, will result in the emission of greenhouse gases, which will contribute to climate change.'

Bursting the bubble

The community won! How did they do it?



Julie Lyford, a member of Groundswell Gloucester. Photo Tree Faerie

Groundswell Gloucester is a non-profit created by a group of locals who wanted the right for their community to have a say in the decisions that affected their future both on the ground in Gloucester and in the atmosphere.

One member of the group, Julie Lyford, says that just getting the word into as many ears as possible was how they won.

'We had an AGI vigil just outside Gloucester for 18 months; we had many marches, and we spent a lot of time cultivating the media,' she says.

'The Knitting Nannas would get a lot of attention as well.'

Lyford says there needs to be a lot of cross-pollination.

'You can't be isolated in your

fight. We showed up to the Leard and the Pilliga and other gas fights. We showed our support for others and they in turn supported us.

'You can't just do one thing; you have to fight on multiple fronts.'

Lyford says they also took a big lead from Bentley and had groups like Lock The Gate come and advise them on what to do.

'We had 32 organisations including EDO (Environmental Defenders Office) and the Greens involved, and we had hundreds of individuals from all over.'

So, the short answer really is: people power. Get the people around you on board. Then get them to get the people around them, and they get the people around them...

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Living and learning sustainably

Byron Community College has a strong program of sustainability-related courses on offer each term to enable students to immerse themselves in sustainable living in Byron Shire.

In addition to the year-long nationally recognised Certificate III courses in Permaculture or Horticulture, Byron Community College offers a range of short courses such as the new Backyard Food Production, Bamboo Basics, Pallet Furniture, Bush Regeneration, Native Bee Keeping, Permaculture Design course modules, Growing Mushrooms at Home, and Solar Panels to name a few.

Not just the basics

With high demand for more advanced courses in Bamboo Building and Build Pallet Furniture, these have now been introduced as well. These courses are about creating long-lasting, affordable, and sustainable furniture.

This year also sees Mullumbimby Community Gardens as the new location for Byron Community College's practical coursework for students to tend as they plant, nurture, grow, and harvest food crops. With fresh bunches of dill, bok choy, cucumbers, and lemons on offer, students have had the opportunity to sell some of their produce as well as prepare meals and specific dishes in class.



Students enjoying the fruits of their labour at Mullumbimby Community Gardens. Photo supplied

Permaculture student Vanessa Stewart has combined her love of art, building, and sustainability with the permaculture studies. 'Collaborating on a number of real-life community projects through permaculture, woodwork, and art has been the most beautiful and timely reminder that we all have the capacity to learn, do, and give back in such tangible ways,' says Vanessa.

'With hand on heart, studying at Byron Community College has been one of the most steep, albeit rewarding, decisions I have ever made. And one that continues to give

back in spades, thanks to the burgeoning relationships with the support staff, impassioned tutors, and my fellow peers – all true ambassadors for change.'

Byron Community College's range of sustainability-focused courses provides hands-on, real-world experience. For Vanessa and fellow students committed to forging change through their studies it's also the opportunity to meet like-minded friends as students gain the practical experiences and confidence to create an ethical way forward while changing their lives and the lives of others towards a better future.

Byron Region Community College is a not-for-profit community organisation with a strong commitment to high-quality, innovative learning for adults. Its vision is to involve and engage people through inspiring learning experiences. The college offers a great range of vocational and general courses throughout the year on subjects covering Sustainability, Childcare, Individual Support, Business, Visual Arts, Language, Wellbeing, Writing, Music, Dance, and Cooking. Find out more at byroncollege.org.au or call the college on 6684 3374.

Landcare then and now

The name *Landcare* evolved in Victoria through an initiative of Joan Kirner (then minister for Conservation, Forests and Lands) and Heather Mitchell, (then president of the Victorian Farmers Federation).

In 1989 the national Landcare movement officially began with Rick Farley of the National Farmers Federation and Phillip Toyne of the Australian Conservation Foundation successfully encouraging the Hawke Government to commit to the emerging movement.

Landcare grew into a national program in July 1989 when the Australian government, with bipartisan support, announced that 1990 would be the Year of Landcare, and the 1990s the Decade of Landcare.

Launching the Decade of Landcare, Bob Hawke spoke about the importance of co-operation to care for the land.

'The degradation of our environment is not simply a local problem, nor a problem for one state or another, nor for the Commonwealth alone. Rather, the damage being done to our environment is a problem for us all – and not just government but for of us individually and together.'

Over the last 30 years, Landcare has continued to play a leading role in managing sustainable agricultural practices, environmental protection, and conservation of land, waterways, coasts, biodiversity, and landscapes.

Brunswick Valley Landcare (BVL) is the local Landcare network in Byron Shire, linking landholders and communities together and sharing learnings. All groups work on-ground to conserve and restore our natural environment from forest to foreshore.

BVL also works with private landholders, schools, local government, and other local organisations on a wide range of projects from threatened species protection to education. Recently BVL has launched Farming into the Future to share knowledge and local experience of regenerative agriculture.

People love Landcare and its broad involvement across all sectors of our community. However, it needs the active involvement of the community to keep it in existence.

Everyone can do their bit no matter where you live. What can you do to help? Volunteer with one of our groups, become a member of Landcare, attend and share knowledge at field days, fence your creeks to limit stock access, regenerate areas of your property with native plants, improve your soil, change your fencing to wildlife-friendly fencing, plant a native garden in the suburbs, landscape your garden to improve water quality, or provide habitat for our native fauna.

Want to know more? Visit www.brunswickvalleylandcare.org.au or ring 6626 7028.

Keeping you and your environment clean

They say the greatest contribution to human health has been cleaning and sanitation. If you dare imagine it there was a time when doctors didn't believe that washing your hands or the surgical implements was even necessary.

So a little cleaning goes a long way but there are also some risks associated with the chemicals we use for, say, cleaning the oven. There is a growing awareness of the dangers of volatile organic compounds (VOCs) that can cause respiratory issues, allergic

reactions and headaches.

'Healthwise, chronic sufferers of asthma, eczema, psoriasis, and those with other skin and respiratory sensitivities find they react to many cleaning agents in today's cleaning products,' say Becky Thompson and Huw Jones, co-founders SimplyClean.

A little vinegar

Is it just a matter of getting out the vinegar and elbow grease? That's certainly a good way to approach it with vinegar topping the list as the go-to for killing mould and dealing with

bad smells but it's an acid, so be careful where you use it.

If you want to take out the guesswork there are a number of products on the market that are putting the health of the planet, animals, and people at the centre.

'There are many benefits to using sustainable cleaning products,' say Becky and Huw.

'These include environmental benefits from sustainable cropping, reducing a product's footprint, making them greywater safe, and being toxic free and improving people's health benefits.'

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