

Permaculture Cairns Inc. Established July, 2007

Web site: www.permaculturecairns.org.au

Permaculture Cairns News

Empowering communities with sustainable solutions

Care for the Earth, Care for people, Share the excess



Care of the Earth, Care of

People. Share the excess

JULY Public Info Meeting

Tuesday 15th 6:30pm for 7pm start

Flexible Learning Centre, 90 Clarke Street, Manunda

Clarke Street comes off Hoare on the Salvos Corner.

Members please bring a plate of finger food to share, and a friend.

Guest Speaker

Sarah Harlan from NQ Solar

I have recently had 8 solar panels installed at home and I am impressed with their performance. So I asked Sarah to come talk to us and she has kindly agreed to give an update on what is happening in the Renewable Energy Sector and what solar energy can do for you. The sector seems to be in a flux at present and I thought it might be good to hear from someone in the industry. Thank you Sarah.

Permaculture Cairns Building Resilient Communities Workshop Series two in July and one in August

Create a Herb Spiral at Bungalow Community Gardens

with Bruce Zell and Jenny McGrath

19ST July 2014, 9am for a 9.30 start – finish 12.30

A Herb Spiral is a great way to grow lots of plants in a small space plus creating the right environment for each plant.

Moisture loving plants will grow best at the bottom while those that require better drainage do better at the top.

Herbs requiring shade will be shaded by taller plants.

Have all your herbs in one place for easy harvesting.

A hands on event so bring your gloves and a hat.

Registration is essential - email- workshops@permaculturecairns.org.au

There is a \$10 fee for the workshop which may be paid on the day. Morning tea is provided

Venue:- Bungalow Community Gardens on Cnr Aumuller and Spence Streets.

PERMI- CRAFT MORNING workshop

26TH July 2014, 9am for a 9.30 start – finish 12.30

This will be a fun morning with three components:

1. Short sessions on Permaculture Practices in the Permaculture gardens, eg making a strawbale garden, raised garden beds and wicking beds explained and Movies
2. Craft activities and demonstrations, eg Scarcrow making, Mosaics, Paper making, Felting, Basketry, Painting garden ornaments, Paper Mache, Making Owl faces from recycled materials and lots more.
3. Demonstrations: Spinning wool and Recycled Items.

This event is to encourage parents and children, and children of all ages, like grown up one, to have fun together as well as learning a new skill and some Permaculture practices. All Welcome

COST: \$10 per Adult, Children free. Fee payable on the day.

Expressions of interest are sort from craft recyclers and those wishing to attend.

email- workshops@permaculturecairns.org.au

Venue:- Flexible Learning Centre, 90 Clarke Street, Manunda

GROWING FOOD IN SMALL SPACES

With Megan McBride

Saturday 9th August 2014

Small space growing systems

Five easy steps to green thumb gardening using Greensmart pots.

Planning, planting and common individual plant needs.

Trees in small places.

Roof Gardens.

Fertilizers and foliar feeding.

Chemical free gardening.

Potting mixes and soils.

Registration is essential - email- workshops@permaculturecairns.org.au

There is a \$10 fee for the workshop which may be paid on the day. Morning tea is provided

Venue:- Flexible Learning Centre, 90 Clarke Street, Manunda

We thank the SITA Community Grants Program for making these three workshops possible.



PERMACULTURE CAIRNS WORKSHOP

Introduction to Permaculture

This two day workshop will be run over two Saturdays

Saturday 4th and Saturday 11th October 2014

If you would like to participate please

Email: workshops@permaculturecairns.org.au

Biodynamics FNQ Workshops - Sun 13th July, 2014 10-4.30pm

WEEDS

The bane of our life or our wonderful Messengers !

Talk and discussion with Adam Collins

Venue; Glen Drury, Foresters Rd, Malanda.

Bring chairs and lunch/morning tea to share Refreshments provided.

Biodynamic Basics - 17th August 2014 10-4.30pm

Southern Tablelands—Ravenshoe

This is for beginners and repeats—where we learn the basic Biodynamic methods, stirring the preparations and putting out, making BD Compost, Cow pat Pit, Seaweed and weed teas, and why we do it!

A fun day with lots of hands on activity as we build compost together etc.

Venue: Max Brandenberger, 284 Woorwoora Rd, Ravenshoe. (off Tully Falls Rd.)

\$30 members \$40 non members Repeats free.

Wear old clothes, closed in shoes and bring gloves.

Bring chairs and lunch/morning tea to and lunch/morning tea to share Refreshments provided.

Biodynamic Basics Weekend Workshop - 23-24 August 2014

Helenvale 30km sth Cooktown

With Adam Collins

Learn the basic Biodynamic methods, stirring the preparations and putting out, making BD Compost, Cowpat Pit, Seaweed and weed teas, and why we do it!

Biodynamic calendar for planting and sky watch on Saturday evening.

Bring food from your garden to share— we'll make a feast. Refreshments provided. Bring chairs.

Free camping available.

Cost: \$60 members BDFNQ \$80 couple

Non members: \$80 single \$120 couple Incl. Membership to BDFNQ.

Bookings: Waratah Nicholls 0429 695533

Email preferred: waratahnicolls@gmail.com

PERMACULTURE PRINCIPLE NO 7

Design from patterns to details - "Can see the forest for the trees"

By stepping back, we can observe patterns in nature and society. These can form the backbone of our designs, with the details filled in as we go. Every spider's web is unique to its situation, yet the general pattern of radial spokes and spiral rings is universal. The proverb "can't see the forest for the trees" reminds us that the closer we get to something, the more we are distracted from the big picture.

News Items

In the battle of renewables v traditional generators, winner will take all

"Arm wrestle" doesn't do justice to the struggle over the Renewable Energy Target, unless you picture an eye-popping, vein-bulging, gut-wrenching arm-wrestle with everyone shouting and both sides near to collapse.

There are tens of billions of dollars and perhaps hundreds of millions of tonnes of CO2 abatement at stake. Without a carbon price, Australia's commitment to reduce greenhouse gas emission by 5% by then is getting harder and harder to keep, and the possibility of deeper cuts in line with increasing international effort is receding altogether.

On the one side is the upstart clean energy industry, which wants the estimated \$15 billion of new investment that will -- finally -- come in a rush if the existing "20% reduction by 2020" RET is retained with certainty. Cheering them on are consumers, who, all the modelling shows, will get cheaper electricity from increasing penetration of wind and solar. When he attacks renewable energy for raising prices, as he did this week, the Prime Minister [is being deliberately misleading](#).

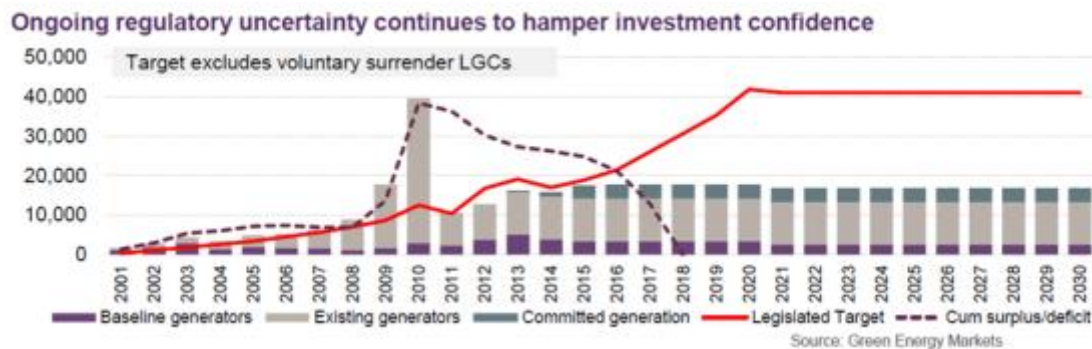
On the other side, sadly, and cheered on by sections of the federal government, are our big three, overwhelmingly coal- and gas-fired, vertically integrated incumbents -- Origin Energy, AGL, Energy Australia -- whose business model is under threat from renewables, and which stand to make as much as \$13 billion from the higher prices and diminished competition they would reap over the next decade if the RET were repealed.

Until last Wednesday, that repeal seemed a distinct possibility, only strengthened by the appointment of avowed climate sceptic Dick Warburton to review the RET. And maverick MP Clive Palmer's big announcement alongside Al Gore -- that he would save the RET until the next federal election, in 2016 - was not so much a win for the renewables industry as a massive comeback that brought both arms upright. We're deadlocked again, as we have been for years.

We can't build new coal-fired plants because banks won't lend while uncertainty remains -- and it will remain, no matter what the PM says or does -- over climate policy. Gas is increasingly uncompetitive because we've decided to export massive amounts of coal seam gas from Queensland, doubling and trebling prices to international levels on the east coast.

We can't build major new renewables until the future of the RET is resolved and a bank of surplus renewable energy certificates -- legacy of the generous upfront incentives given to domestic solar, before the renewable energy scheme was split into large- and small-scale in 2010 -- is used up.

As the graph below shows, we're not there yet. The bars show how much renewable energy we're generating from pre-existing renewable sources like Snowy-Hydro, existing renewables (large and small) and renewables under construction. The dotted line shows the surplus of certificates which has been falling since 2012, when the bars fell below the red line, representing the amount of renewable energy required under the RET, rising to 41000 gigawatt-hours by 2020. The renewable energy certificate surplus won't be used up until 2018.



When that happens, the generators that are liable under the RET will either need to source extra renewable energy or pay a penalty. (That is not a foregone conclusion, by the way: generators may well choose to pay a penalty for a few years rather than underpin construction of new, long-life renewable energy capacity if uncertainty remains over the long-term policy framework.)

The most competitive source of new, large-scale renewable energy is wind. There are plenty of wind projects with planning approval, ready to go. They take two years to build. If they want to wait as long as possible, the generators could do nothing until 2016. Coincidentally, that is an election year.

If there were lasting certainty about the RET, the rollout of new wind would start right away. [Origin calculates](#) perhaps 2600 new, 3-megawatt wind turbines with a combined nameplate capacity of 8000MW would need to be built before 2020. The benefits would be huge: lower electricity prices by \$56 a year by the next day, according to consultants [ACIL Allen](#); investment of \$15 billion; 18,400 jobs; cumulative abatement of up to 102 million tonnes of CO₂ (which is a very big chunk of the 370 million tonnes we need to cut to meet our national emissions reduction target).

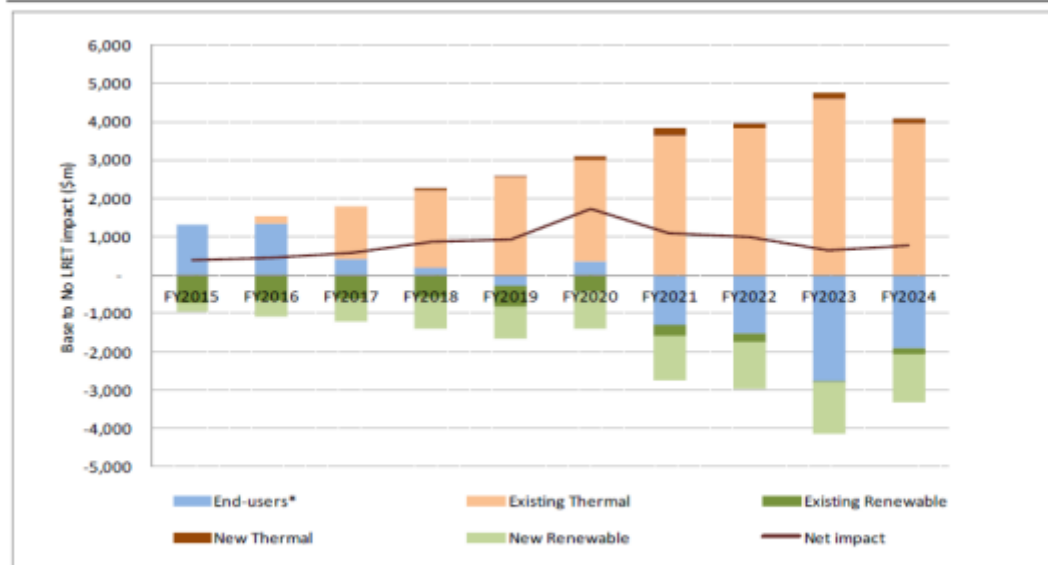
The bigger problem? What renewables and consumers win, the incumbent generators lose. As is now widely recognised, electricity demand is falling, for all the reasons [brilliantly exposed by Jess Hill](#) for ABC Radio National's *Background Briefing* program. Emissions reduction aside, there is no need for new generation capacity. The RET was set when electricity demand was expected to hit 300,000 GWh. Forecasts are now down to 280,000GWh and lower. If we deliver all that new wind capacity into a flat market, something will have to give.

Coal-fired power stations -- especially, counter-intuitively, black coal -- are already closing, with Energy Australia's Wallerawang only the latest [to be mothballed](#). (and there is speculation about the fate of the ageing Liddell power plant AGL has just been approved to buy as part of Macquarie Generation). The Australian Energy Market Operator [forecasts](#) that keeping the RET is "likely to lead to the early retirement or mothballing of more existing generation plant than would otherwise be the case". What plants will go? In its [submission to the RET review](#), The Climate Institute points out the dilemma of the first-mover disadvantage and calls for an orderly exit mechanism: "a number of ageing, high-polluting electricity assets are no longer needed in the market, and their continued presence impairs the profitability of every other asset".

Respected consultant Hugh Bannister of Intelligent Energy Systems [has modelled](#) the winners and losers from repeal of the RET over the next decade. The results (pictured in the graph below) are crystal clear: the interests of renewable energy providers and consumers are directly opposed to the interests of the incumbent thermal (coal- and gas-fired) generators. Adding up the figures over the decade, repeal of the RET would cost electricity users an extra \$554 million in higher electricity bills (short-term gains are eroded longer term), and renewable energy providers miss out on sales worth \$7 billion. On the other hand, thermal generators stand to make \$13 billion, as there is more reliance on expensive gas and, longer term, a small amount of new gas

plant is built, with the rest of us bearing the extra abatement cost. *Climate Spectator* has estimated the total windfall could be [as much as \\$30 billion](#).

Figure 3: Base Case to a No LRET Scenario Impact*



* Results do not take into account possible network upgrades over and above currently committed projects. Inter-regional settlement residues have been omitted from the chart.

Complicating this easy picture, the incumbent thermal generators have major investments in renewable energy, and if forced to meet the RET will have the whip-hand when it comes to deciding which projects get up, determining whose power they will buy. Still Origin Energy, AGL and Energy Australia are overwhelmingly motivated by a rational desire to maximise returns on the bulk of their assets, which is in coal and gas, and want the RET reduced.

So in this market, in this decade, it boils down to this: incumbent generators v renewables. There can only be one winner. Both sides are shaking.

Article by Paddy Manning Crikey business editor – Independent media. Independent minds 4/7/14

Overseas carbon credit schemes: no brainer or disaster in the making?

Could Australia really cut our greenhouse gas emissions by 19% for only a billion dollars by buying cheap international carbon credits? Or is it too good to be true?

As Climate Change Review author Ross Garnaut pointed out [last Friday](#) and Bernie Fraser's reinvigorated Climate Change Authority (CCA) -- recently saved by Clive Palmer -- pointed out in [this report](#) yesterday, Australia could be missing out on the bargain of a lifetime.

To recap: the government plans to create an Emissions Reduction Fund to spend more than \$2.6 billion to buy 421 million tonnes worth of *domestic* emission reductions, cumulative to 2020, to

reach our target of a 5% cut in carbon emissions as compared to business as usual, which works out at a minimum \$6 per tonne of CO2 avoided.

Yet this week on the international carbon market, verified abatement can be bought for as little EUR17c a tonne (AUD25c). So the CCA conservatively estimates that for under \$500 million we could lift our emissions reduction target to a 19% cut in emissions -- the level it deems to represent our fair share of the global effort -- buying the required extra 427 million tonnes worth of carbon credits for \$1.15 a tonne. Using the same assumptions, the CCA calculated for *Crikey*, if we ditched the Emissions Reduction Fund completely, we could still hit the 19% reduction target by buying almost 850 million tonnes of abatement overseas for \$1.34 a tonne, or just \$1.1 billion.

Sale of the century? Or get what we pay for?

There are two main reasons why such cheap carbon credits are available overseas. The first is to do with timing: there is a one-off, "use it or lose it" opportunity to buy excess credits from the first commitment period of the Kyoto Protocol, which ran from 2008-12. That opportunity expires in mid-2015, when there will be a final "true-up" to determine whether countries did what they said they would do. After that, some may be carried over, but the vast bulk of the excess credits will be cancelled. Until that happens, the price of carbon credits will be artificially low.

Secondly, the carbon market is likely to remain fundamentally oversupplied through the uncertain, second commitment period of the Kyoto Protocol, from 2013-2020, because a) schemes such as the United Nations' Clean Development Mechanism (CDM) have been more successful than expected in generating carbon credits (albeit many of low quality); and b) governments have been slower than expected in creating demand for credits -- i.e. by establishing big new national emissions trading schemes -- or, like Australia and the European Union, have placed limits on how much abatement can be bought offshore. California's emissions trading scheme simply won't allow CDM credits.

It is not hard to see why. The potential for rorting is enormous. The CCA report gives examples of controversial CDM projects that have been used to generate carbon credits of dubious environmental integrity, which it recommends Australia avoids: "temporary" credits from forestry schemes; credits from destruction of industrial gasses, so lucrative that they created a perverse incentive to continue manufacturing them; credits from environmentally destructive dams; credits from new coal-fired power plants that are supposedly cleaner than they might otherwise have been. All fundamentally dodgy.

But even those examples the CCA cites favourably ring alarm bells. Here's just a few:

- The Kuyasa program in a low-income housing development in Cape Town, South Africa, would reduce emissions by 6580 tonnes per annum by installing ceiling insulation, solar water heaters and energy-efficient lighting through retrofitting 2300 existing homes. What could go wrong?
- The India Cements waste heat recovery project in Andhra Pradesh would reduced emissions from the cement plant by 7766 tonnes per annum, converting hot flue gasses to electricity, with CDM funding lifting the internal rate of return from 11% to 15%. A nice little earner -- would it have been economic anyway?
- A German-funded, 80MW-stage of the Zafarana wind farm in Egypt, the biggest in Africa, developed by the state-owned New and Renewable Energy Authority, was conservatively reckoned to save 171,500 tonnes a year. It is hard to find updates online. Egypt still has a 20% by 2020 renewable energy target but, given everything going on there, what's the chance this project ran on time and budget?

The list goes on: 20,000 biogas digesters in Nepalese homes; a 70kw run-of-river micro hydro turbine in Bhutan; the Zhonglianshan coal mine methane capture project in China. Remote locations in developing or unstable countries, small licks of abatement, an underfunded UN bureaucracy reliant on third-party certifiers to ensure accountability ... no matter how worthy the projects or how honest the proponents, it is very hard to see how the stupendous emissions of the industrialised world can be offset by schemes like these.

You can almost hear the shock jocks banging on at the thought of Australian taxpayer dollars funding this type of project. Prime Minister Tony Abbott is sceptical, [once describing](#) the purchase of international credits as "money that shouldn't be going offshore into dodgy carbon farms in Equatorial Guinea and Kazakhstan".

The Greens are also wary of reliance on offshore carbon credits -- so that's at least one thing Abbott and leader Christine Milne could agree on. Milne's office did not respond to Garnaut's call but referred *Crikey* to the Carbon Market Watch website, which has [called for CDM reform](#), and to a [persuasive 2008 Stanford University critique](#) that found that "at root, the CDM and other offset schemes are unable to determine reliably whether credits are issued for activities that would have happened anyway while also keeping transaction costs under control and assuring investor certainty".

For all these reasons in 2012 *The Economist* called the CDM a "[complete disaster in the making](#)". Climate lawyer Martijn Wilder, head of Baker & McKenzie's global environment markets practice and a director of the Clean Energy Finance Corporation, says the CDM is fundamental to the Kyoto Protocol and on the whole the projects are credible, with a lot of "low-hanging fruit" in terms of cheap abatement in the developing world. But developing nations may want to count CDM emissions reductions towards their own emissions reduction targets in the second commitment period -- raising the spectre of double counting. Australia needs to strike a balance between domestic and offshore abatement, and should be "very careful" buying credits left over from the first commitment period of Kyoto, in the hope that they can be carried over. "Legally, there is no guarantee that they can be counted in the future," Wilder warned.

But with Australia hurtling over a climate policy cliff -- no cap on emissions, no carbon price, possibly no Direct Action program either, and only the Renewable Energy Target to save us -- we may have to take some tough choices. Lobby groups like the Business Council and AIG favour buying offshore credits: it would be a form of insurance to deal with our international climate obligations this decade so cheaply. In the words of Bloomberg New Energy Finance Australia chief Kobad Bhavnagri, it is a "no brainer".

Article by Paddy Manning, *Crikey* business editor 8/7/14

TURNING MINING WASTEWATER INTO RAINWATER

A new cost-effective technology to treat mining wastewater and reduce sludge by up to 90 per cent has been used for the first time at a commercial mine.

The technology, called Virtual Curtain, was used to remove metal contaminants from wastewater at a Queensland mine and the equivalent of around 20 Olympic swimming pools of rainwater-quality water was safely discharged.

Sludge is a semi-solid by-product of wastewater treatment and reducing the amount produced has huge environmental and economic benefits.

"Our treatment produced only a fraction of the sludge that a conventional lime-based method would have and allowed the mine water to be treated in a more environmentally sound way," CSIRO scientist Dr Grant Douglas said.

"Reducing the amount of sludge is beneficial because the costly and timely steps involved to move and dispose it can be reduced."

Given the Australian mining industry is estimated to generate hundreds of millions of tonnes of wastewater each year, the technology opens a significant opportunity for companies to improve water management practices and be more sustainable. "The technology can produce a material high in metal value, which can be reprocessed to increase a miner's overall recovery rate and partially offset treatment costs," Dr Douglas said.

Virtual Curtain utilises hydrotalcites, which are minerals sometimes found in stomach antacids, to simultaneously trap a variety of contaminants - including arsenic, cadmium, and iron - in one step.

Dr Douglas and his team developed the technology after discovering that hydrotalcites could be formed by adjusting the concentrations of common wastewater contaminants, aluminium and magnesium, to an ideal ratio and then by increasing the pH. "By using contaminants already present in the wastewater we have avoided the need for expensive infrastructure and complicated chemistry to treat the waste," he said.

"If required, the treated water can be purified much more efficiently via reverse osmosis and either released to the environment or recycled back into the plant, so it has huge benefits for mining operators in arid regions such as Australia and Chile.

"It is a more efficient and economic way to treat wastewater and is enabling the global mining industry to reduce its environmental footprint and extract wealth from waste." The licensed technology, which can be applied to a range of industrial applications, is available through Australian company Virtual Curtain Limited.

From CSIRO Snapshot 2nd July 2014

News from Australian Renewable Energy Agency

Power producing roof revamps Australian homes

13 June 2014

A clever new renewable energy solution combining COLORBOND® pre-painted steel sheet roofing with cutting-edge, thin-film solar panels is set to provide Australian homes with a streamlined, aesthetically pleasing rooftop energy system that captures the sun's energy as both electricity and heat.

ARENA CEO Ivor Frischknecht joined Parliamentary Secretary to the Minister for Industry, Bob Baldwin, to launch the new technology at a home in Sydney today.

The [\\$5 million landmark project](#) was undertaken by the Australian-based global building market supplier BlueScope, with \$2.3 million support from ARENA.

“Today we are witnessing an exciting new technology solution moving from the lab to be prototyped on everyday Australian rooftops for the first time,” Mr Frischknecht said.

“The old corrugated steel roof on this house in Glebe has been completely replaced with the first integrated photovoltaic (PV) thermal system in Australia, generating reliable renewable energy for the residents. A tile roof in the Illawarra region has also been replaced with the integrated PV system, demonstrating its versatility.

“In addition to PV panels, an innovative thermal duct system warms and cools air to supplement air conditioning in the homes.

“These first installations are an important step as the technology moves towards commercialisation and cost competitiveness with conventional rooftop PV.”

Mr Frischknecht said the company had specifically designed the roofing system for Australia’s climate and building environments to ensure the PV systems were durable and robust.

“This new integrated PV system has been designed to provide a low cost system for Australian residential, commercial and industrial rooftops,” Mr Frischknecht said.

“It has the potential to reduce installation and energy costs as well as reduce peak energy demands placed on the grid.”

BlueScope is trying to reduce system costs through improved PV modules and roofing designs, reduced packaging and transport, improved building energy efficiency and easy, low-cost installation.

Media contacts

James Webber – 0410 028 899

Judith Ion – 0434 169 037

media@arena.gov.au

Aussie veggie growers beg Jamie Oliver to stop Woolies fee

June 12 – Sydney Morning Herald

Vegetable farmers are angry the supermarket firm is charging them a new fee of 40¢ a crate to fund the Jamie's Garden advertising campaign on top of an existing marketing levy.

One large supplier is expecting to pay \$300,000 over the six-week campaign, the industry's peak group AUSVEG said. Extra pressure was also being placed on smaller operators working on "wafer-thin" profit margins

Read more: <http://www.smh.com.au/national/aussie-vegie-growers-beg-jamie-oliver-to-stop-woolies-fee-20140611-zs3w7.html#ixzz36jx1onQM>

9 July 2014, 6.14am AEST

THE CONVERSATION

How pushing water uphill can solve our renewable energy issues

More and more renewable energy sources are being plugged into Australia's electricity grids. South Australia, for example, will get 40% of its electricity from wind and solar once the [Snowtown wind farm](#) is completed later this year.

But if renewable energy is ultimately to dominate the market, we will need ways to store the energy so we can use it round the clock. The good news is that it is easy to store energy. All you need is two small reservoirs – one high, one low – and a way to pump water between them.

This technique, called “off-river pumped hydro energy storage”, can potentially provide the energy storage that Australia needs to embrace renewables fully. It's cheap, too.

How pumped hydro works

When there is excess electricity, water is pumped through a pipe or tunnel, to the upper reservoir. The energy is later recovered by letting the water flow back down again, through a turbine that converts it back into electricity. Efficiencies of 90% in each direction are possible.

Pumped hydro is by far the most widely used form of energy storage, representing 99% of the total. Worldwide, pumped hydro storage can deliver about 150 gigawatts, mostly integrated with hydroelectric power stations on rivers.

In an “off-river” system, the same water circulates in a closed loop between the upper and lower reservoirs, eliminating the need for the facility to be built on a river. The amount of energy stored is proportional both to the elevation difference between the upper and lower reservoirs (typically between 100 and 1000 m), and to the volume of water stored in the upper reservoir.

Electricity storage systems need to be able to deliver instant power output for periods of a few hours. This covers short-term fluctuations in wind and solar outputs, peaks in consumer demand (such as very hot summer afternoons), and unplanned outages of generation and transmission infrastructure. Using stored energy also helps to keep power lines from wind and solar facilities in use for more of the time.

Of the available electricity storage options, such as batteries and flywheels, pumped hydro is by far the cheapest. It has no standby losses while the water waits in the reservoir, and can reach full power in 30 seconds.

Time to go off-river

There is little opportunity for Australia to develop on-river hydroelectric power, because of environmental and other constraints. But, there are vast opportunities for short-term off-river energy storage. A typical site would comprise a pair of small reservoirs connected by a pipe through which water would be cycled daily, together with a pump and turbine, powerhouse and power lines.

Australia has thousands of excellent potential sites in hilly areas outside conservation reserves, with typical elevation differences of 750 m. They don't need to be near a wind or solar farm.

Off-river electricity storage has several advantages over typical on-river facilities:

- There are vastly more potential sites
- Sites can be selected that do not clash with environmental and other values
- The upper reservoir can be placed on top of a hill rather than in a valley, allowing the elevation difference to be maximised
- No provision needs to be made for floods (typically a major cost).

A system comprising twin 10-hectare reservoirs, each 30 m deep, with a 750 m elevation difference, can deliver about 1,000 megawatts for five hours. Between 20 and 40 of these systems would be enough to stabilise a 100% renewable Australian electricity system.

How much does it cost?

As the reservoirs are tiny (just a few hectares) compared with typical hydro reservoirs, they are a minor component of the cost. Most of the cost is in the power components (pipes, pumps, turbines, transformers and transmission). Initial estimates suggest that the cost of an off-river system at a good site is around A\$1,000 per kilowatt of installed capacity.

Here is a hypothetical case study. A 200 megawatt solar power facility delivers a maximum of half of its power output to the grid in real time, and stores the rest for the evening. Now, instead of peaking at the sunniest time of day, the solar power output extends from 8am to 10pm (depending on season and cloud cover), with a maximum power output to the grid and the pump each being 90 megawatts (after allowing for losses). The reservoir can be recharged at night using wind energy to cover the morning

The stand-alone costs of the solar power system and the short-term hydro storage system are A\$2,000 and A\$1,000 per kilowatt, respectively. After accounting for storage losses balanced by savings from sharing of the transformer and transmission costs between the two systems, and the fact that the hydro storage rating is half that of the PV system, that puts the total system cost at about A\$2500 per kilowatt.

In other words, using pumped hydro storage to smooth out the peaks in output from a solar power station only adds an extra 25% to the cost. That's much cheaper than using batteries.

Location, location, location

Spend some time with a map or Google Earth and you can spot dozens of excellent potential sites, in hilly farmland or along existing powerline routes. Australia has thousands of candidate sites throughout most inhabited parts of the country.

For more on this article see <http://theconversation.com>

There is also an interesting article at this same web site titled - Carbon farming initiative will fail farmers and rural communities

Look what big business is up to in USA

The bad news: Dow Chemical Co. asked the Environmental Protection Agency for permission to sell Enlist Duo, a toxic weed killer mix of 2,4-D and glyphosate to be used on millions of acres of genetically engineered crops. If approved, this dangerous new herbicide cocktail would wreak havoc on human and environmental health.

Researchers have linked exposure to 2,4-D to higher likelihoods of developing thyroid, immune system and reproductive problems, non-Hodgkin's lymphoma and Parkinson's disease. Widespread use would affect dozens of endangered species and potentially contribute to further decline of honeybees and other beneficial insects. Simply put, there's too much at risk not to act.

From the Environmental Working group in the USA

& from - SumOfUs and again in the US

<https://sumofus.org/>

Monsanto and its allies have just announced they're suing the tiny, rural U.S. state of Vermont to stop a new law that simply requires genetically engineered foods to be labeled. In fact, the mere threat of a multi-million dollar lawsuit nearly caused the state to back off the labeling law altogether.

But Vermont is refusing to back down -- and they're asking for our help. They're getting ready to fight back against Monsanto, and have even created a legal defense fund so people around the world can make donations to help them beat back Monsanto's lawsuit.

The SumOfUs community is already fighting Monsanto on every front, but **we need to show Monsanto now that we won't be intimidated.** We won't let Monsanto bully our elected officials into submission. **Will you chip in \$1 to stand with Vermont and fight back against Monsanto?**

Vermont is a small, entirely rural state with just 600,000 people. Vermont vs. Monsanto, one of the most powerful corporations in the world, is a classic David and Goliath fight. But there's much more at stake here than just whether GMO foods will be labeled in a single U.S. state. Vermont is actually the very first state in the U.S. to require labeling, and dozens of other states have said they will require labeling as well -- but only if Vermont's law can survive this legal challenge.

That's why Monsanto is fighting so hard to kill GMO labeling in Vermont. If we can win here, it'll be a huge step towards the goal of GMO labeling worldwide, and making sure consumers know what they are eating.

Monsanto has been threatening this for weeks, but it's only just filed suit through the Grocery Manufacturer's Association, a trade group of which Monsanto is a core member. And Monsanto's legal bullying is part of a growing trend of multi-national corporations suing sovereign governments to overturn regulations they don't like. Since the biggest corporations are larger than many countries around the world, **it's critical that citizens of the world band together to fight back.**

That's what SumOfUs is all about -- harnessing the global consumer power of our nearly 5 million members to take on corporate abuses wherever they occur. And if enough of us donate, we'll be able to not only help out with the Vermont legal defense fund, but launch our own campaign pressuring Monsanto to end these legal attacks on our right to know what's in our food

Articles about GM food from

THE CONVERSATION

24 June 2014, 3.49am AEST

Setting the standards: who regulates Australian GM food?

In this second installment of GM in Australia – a series looking at the facts, ethics, regulations and research into genetically modified crops – David Tribe walks us through the bodies responsible for GM policy and oversight.

Author David Tribe, senior Lecturer in food Biotechnology and Microbiology, agriculture and Food Systems at University of Melbourne.

Read the full article and previous ones by copying the URL below

http://theconversation.com/setting-the-standards-who-regulates-australian-gm-food-25533?utm_medium=email&utm_campaign=Latest+from+The+Conversation+for+24+June+2014+-+1738&utm_content=Latest+from+The+Conversation+for+24+June+2014+-+1738+CID_8d25c2e806072c09147945ac14a9ba14&utm_source=campaign_monitor&utm_term=Setting%20the%20standards%20who%20regulates%20Australian%20GM%20food

Look what I found

A food for family health

Dark green leaves are one of the most nutritious foods available. Some foods have only a few of the nutrients the body needs, but green leaves have many important nutrients. Therefore, serving lots of green leaves can help make sure family meals are well balanced.

Plants make and store **protein**, which the body needs to grow and stay healthy. Meals that do not include other protein sources such as meat, fish, eggs, or beans should always include generous servings of dark green leaves.

Minerals come from the soil and are stored in plants. Eating green leaves gives people important minerals, such as **iron** which makes blood strong, and **calcium** which is necessary for healthy bones.

Green leaves are also a source of vitamins, including **Vitamin A**, **Vitamin B₁**, **Vitamin B₂** and **Vitamin C**. Vitamins are necessary for good health. They help the body work properly.

Almost all green leaves are a good source of protein, vitamins, and minerals, but darker green leaves usually have a greater food value than lighter green leaves. For example, dark green amaranth is more nutritious than pale green European cabbage.

Easy Method for cooking most green leaves:

1. Wash leaves in clean water and remove tough stems.
2. Put a small amount of water in a cooking pot, with a little salt, and bring to the boil.
3. Add the leaves, cover with a lid, and cook until tender but still crisp (3-10 minutes).
4. Serve with butter, margarine, or coconut cream, if desired.
5. If making a soup or a sauce, use leftover cooking water.

A recipe from the Rare Fruits Council of Australia Archives – <http://rfcarchives.org.au>

The Hon. Greg Hunt MP

Minister for the Environment

MEDIA RELEASE

4 July 2014

Working towards rollout of 20 Million Trees

Work towards the commencement of the 20 Million Trees Programme is continuing to progress and the Government is now seeking feedback from organisations who may wish to be involved in the rollout.

The 20 Millions Trees Programme is a key Coalition election commitment and will see large-scale revegetation projects delivered across the country.

Projects will include re-establishing green corridors and urban forests, increasing and improving habitat to support our threatened species, and creating greener spaces to improve the liveability of our cities and towns.

The Australian Government has committed \$50 million over four years to the 20 Million Trees Programme with funding to commence from 2014-15. It's an important part of the National Landcare Programme and will deliver real environmental benefits in local communities.

20 Million Trees will be implemented through a combination of competitive grants to land managers and local community groups, and a tender process for larger-scale Service Providers.

The Government is now inviting submissions from interested parties on how best to deliver large-scale tree planting in a way that best utilises industry expertise, knowledge and capacity to achieve environmental conservation outcomes and community engagement.

Suitable Service Providers are encouraged to take this opportunity to make a difference to the environment by helping the Government to reach its target of planting 20 million trees by 2020.

Submissions received through this Request for Information process will inform a subsequent Request for Tender (RFT) process that will invite potential delivery partners to apply to become a 20 Million Tree Service Provider.

There will be opportunity for the community to be involved in consultation for the 20 Million Trees Programme as part of wider consultation for the National Landcare Programme in the coming months.

For more information on 20 Million Trees, visit www.environment.gov.au/land/20-million-trees

For more information on how to make a submission, visit www.tenders.gov.au

Take Care when driving in the rain – here are a couple of tip which may save your life

Something I found helpful while driving in heavy rain near Innisfail was to put my sun glasses on – visibility is so much better even at night in heavy rain.

And another tip is NEVER USE Cruise Control on your car in the rain, if your hydroplanes on the wet road you may lose control of the vehicle.

Ongoing Date Claimers

Tablelands LETS July Calendar

MALANDA - Saturday 12th, 6 - 9pm Trade Night at Katrin's Place.

33 Park Avenue, Malanda, opposite the caravan park. Family friendly event. Trade starts at 6pm followed by a shared dinner at 7pm. Tea and coffee is provided. Bring items to trade, instrument if you feel like busking for bartles or simply come for a chat and socialize. **Event Host: Katrin on 40966755.**

CAIRNS - Tuesday 15th, 6.30pm LETS Trading is encouraged at Permaculture Cairns meetings at the Flexible Learning Centre, 90 Clarke Street, Manunda. Cost for non-members to attend is \$5 for info session, supper and film etc. **This is a Permaculture Cairns Event.**

MAREEBA - Saturday 19th, 11am - 1pm Trade Day, 7 Kenneally Rd, Mareeba. Bring along goods to trade and a plate for shared lunch. Children welcome. **Event host: Tash on 0432984977**

RAVENSHOE - Saturday 19th, Trade afternoon 12 - 2pm, following Community Gardens gathering - come and check it out. Bring something to trade, a table or blanket to display your wares and lunch to share. Youth Shed, Ravenshoe Community Centre, 3 Bolton Street, Ravenshoe. **Event host: Kathy on 40977864**

CASSOWARY COAST - Sunday 20th, 11am-3pm Trade & Social Gathering - Johnstone River Community Gardens, Flying Fishpoint Rd, Innisfail. Bring a plate to share and eating utensils, make use of the BBQ. Tea/Coffee by gold coin donation. Lunch will be at 12 noon. Trade starts 1pm. A child-friendly venue. **Weather permitting – ring event host Suari for confirmation 0403115261.**

WONDECLA - Sunday 20th, Trade from 12noon at the sports ground opposite the servo directly after the Wondecla Market. Starr will have a market stall selling fresh herbs, join her for LETS trading from noon. Bring a chair, a rug or small table to display your wares and lunch to share. **Event host: Starr on 0467090207 or starrmaree@gmail.com**

YUNGABURRA - Saturday 26th, 12-2pm Trade at *that retro cafe*. Shop 2/20 Eacham Rd (in between Miss Megs and My Habitat). Drinks available for 100% bartles. Bring a table or blanket to display your wares. Children most welcome. This event is **directly after the Yungaburra Markets. Event host: Melitta on 0437216122.**

What to bring to Trade Events where not specified above: food & drinks for yourself or to share, or money and/or Bartles at some venues, friends, Trading Record Sheet and pen, any goods you wish to trade, table/rug to display them upon is often useful, your own chair at some venues, promotional material of any services you are offering if applicable, \$20 if you don't yet have a LETS account.

tablelandlets@gmail.com - 4096 6972 - lets.clearwater.com.au - www.communityexchange.net.au

Informative, useful and Interesting Websites:

<http://www.culturesforhealth.com> A USA website with lots of info. recipes, free eBooks on fermenting foods and lots more. You can sign up for their weekly newsletter. “And therein lies the lure of fermentation. As Pollan writes in Cooked, its deliciousness is the by-product of decay, and decay is a fermento's dream and a food regulator's nightmare. But the times they are a'changing: recent medical research has concluded that one of the problems with the Western diet is the absence from it of live-culture foods, while another study has linked the intake of certain probiotics found in some ferments to improved mental function and mood. We need more decay, it seems, not less. So pass the sauerkraut, please. I've heard it can even cure middle age.”

<http://care2.com/greenliving/>

This website has lots of interesting topics, food that is banned elsewhere but still available in the USA, good alternative recipes for making healthy food eg. ice cream and lots more.

<http://manybooks.net> A place that offers free downloads of books – check out “Farmers of forty Centuries” by FJ King written 1911 after or during a trip to China, Korea and Japan. This incredible book explains how these peoples have been growing food for centuries. Check to see if Bread from Stones is there, another interesting read.

<https://www.organicgardener.com.au> Lots of info and a great planting guide for the year.

<http://rfcarchives.org.au/index.htm> - Rare Fruits council of Australia – Fruit/Nut Trees and lots Recipes

July - August Date Claimers

13th July – Weeds workshop with FNQ Biodynamics
15th July – Permaculture Cairns info meeting night at Flexible Learning Centre
19th July – Herb Spiral Workshop – Permaculture Cairns, Bungalow Community Garden & SITA Event
26th July - Permi/Craft Morning at the Flexible Learning Centre a SITA grant workshop

9th August – Gardening in small spaces – Permaculture Cairns SITA grant workshop
17th August – Biodynamic workshop Ravenshow
19th August – Permaculture Cairns info meeting night at Flexible Learning Centre
23rd August – All about Earthworms – Permaculture Cairns SITA grant workshop
30th August – Biodynamic workshop – calendar explained

Well that's it from me, hope you enjoy it as much as I did researching and putting it together.
If you have something interesting and would like to share it, please email me at -
workshops@permaculturecairns.org.au.

Cheers
Carol

PERMIE RESOURCES, & SERVICES

RESOURCES:

“Notes from the Workshops Booklet” All notes from the Permaculture Cairns Resilient Communities Workshops 2012 are now available for purchase at meetings and at Enviromart Australia on corner of Scott and Aumuller Street, TOPICS COVERED: How to Grow your own Fabulous Organic Food, All about Earthworms, Growing Microgreens, All about Wicking beds, All about Aquaponics, Composting, Creating a raised garden bed, Tropical plants that grow all year round and recipes for cooking these, Drying and preserving excess fruit and vegetables, Balcony and patio gardening, Hot to use The Bokashi Bucket, Waste not want not – recycling organic waste, Poultry in the city, Vegetables for the small tropical farm or garden, and a Sprouting guide.

This is a MUST HAVE it's FULL OF LOCAL KNOWLEDGE about living in a environmentally friendly way and and growing food sustainably in the tropics.

The booklet would make a great gift for anyone wanting to grow their own food in the tropics.

Edible Tropical Vegetable Plants: Tropical Vegetables and useful Plants available from Enviromart Australia on corner of Scott and Aumuller Street or phone Carol 0414900717

SERVICES

Do you need help to plan or build your garden???

Bruce Zell, Director of The Back Yard Revolution is a Permaculture Diploma Graduate, Licensed Structural Landscaper and has extensive experience in landscaping, food garden design and implementation, Project Management and more.

Contact Bruce for more details-

email: brucezell@gmail.com, www.backyardrevolution.com.au or

Mob. 0404 9944 528

Don't have much space for growing? Then contact Tegan for advice on wallgardens, or wicking pots for growing plants.

Garden of Tegan – Readymade moveable gardens, suitable for patio or balcony.

A wicking bed of herbs and vegetables that will be enjoyed all year.

Contact Tegan 0402 853 903

Stop press notice - FRACKING – LOCK THE GATE EVENT

A public event to share information on 'Unconventional Gas' extraction and watch the Lock the Gate Alliance documentary, '*Fractured Country*'. Guest speaker, Kane Booth a local farmer formerly from a coal seam gas affected community, will share his f A public event to share information on 'Unconventional Gas' extraction and watch the Lock the Gate Alliance documentary, '*Fractured Country*'. Guest speaker, Kane Booth a local farmer formerly from a coal seam gas affected community, will share his family's experiences in Southern Queensland.

To be Held at GERAGHTY PARK HALL, JULATTEN on THURSDAY 24TH JULY 2014 @ 7PM
Tea and coffee will be provided on the night.

Please contact Anita on 0448 229 190 for any further information about the night. There will be a gold coin donation box on the night which will go towards covering hall costs and support the local Alliance to raise awareness.

For more information on how you can assist the local Alliance, please email Bood at bood@tpg.com.au

LAST MINUTE ADDITION !!!!!!!!!!!!!!!

Permaculture Design Fundamentals Course

5 day Intensive @ JCU Cairns : 21-25 July

Contact: Brett Pritchard at drytropics@gmail.com

Hurry closing soon!!!!!!!!!!!!

Please note Memberships fees for 2014 are due and payable the 1st January 2014
Memberships form may be completed online on our web site and emailed to us from there



Permaculture Cairns

Membership Form 2014

One year's membership fee - 1 Jan - 31 Dec:

☐ Household membership \$30 ☐ Renewing Member ☐

Individual membership \$20 ☐ New Member ☐

Name(s) of all applicant(s) & DOB if under 18yrs:

.....

.....

.....

Postal Address:

..... **Postcode:**

Phone(s):

Email:

Signature:

Payment may be made at Meetings, at Bank or Online Direct Deposit – Permaculture Cairns Account at Cairns Penny Bank in Grafton Street. BSB 704-966 Account No. 100009440 please include your Surname as reference.

Do you have skills that you would be willing to share that would be of help to Permaculture Cairns? If so please give details below-

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Permaculture Cairns Public Meetings - All Welcome Third Tuesday of month Feb to Nov (Second Tuesday Dec). Doors open 6.30pm, meeting starts at 7pm at: Flexible Learning Centre, 90-92 Clarke St. (off Hoare St), Manunda

Enquiries

President: Carol Laing workshops@permaculturecairns.org.au

Secretary: Tegan McBride: info@permaculturecairns.org.au

Treasurer: Jenny McGrath treasurer@permaculturecairns.org.au

Website: www.permaculturecairns.org.au