



Benalla Sustainable Future Group

Newsletter 33

August 2022

Benalla Sustainable
Future Group Inc.
PO Box 642
Benalla 3672

President's Message

A number of people have commented to me over the weeks since the Federal election that, "It feels like we are living in a different country". Time will tell of course, but the early signs are promising, without being entirely convincing. One huge plus is that at least the tone of communication is not so pompous and aggressive!

Environmentally wise, we finally have a legislated (but inadequate) emissions reduction target for 2030 and 2050. This is hopefully just a starting point, and will lead to other policy decisions which will rapidly advance the uptake of renewable energy, and the replacement of the internal combustion engine transport system. My big concern is that the government will approve new gas and coal mines in Australia - a decision that would wipe out any emission reductions gained from implementing renewable energy and EVs. In recent weeks, there was a glimmer of hope - Tanya Plibersek rejected Clive Palmer's proposed coal mine in Queensland on the grounds that it will further endanger the Great Barrier Reef. This was a decision already made by the Queensland Environment Department about eighteen months ago, but not endorsed by Sussan Ley when she was Environment Minister.

However, this hope has now been dashed by the announcement by Resources Minister Madeleine King, that the government has approved new gas and oil exploration licences.

The next few months will be critical, because decisions will also be made regarding opening up new gas fields near Narrabri in NSW and the Beetaloo Basin south of Katherine, and potentially other coal mines in Queensland. I urge all of you to write to politicians (especially Albanese and Plibersek), and newspapers, to strongly make the point that any new mines will make it impossible for Australia to honour its emission reduction target. Moreover, it makes very little sense from an economic viewpoint to be investing in new gas

or coal projects, as the world moves away from these fuels (who wants to own a stranded asset?).

The other encouraging news of recent weeks has been in the area of energy storage systems. One concept developed in Finland uses a sand battery, and another being trialled in Wodonga for the Mars pet food factory uses a graphite battery (see Ian Herbert's article in this newsletter). These are examples of what can, and will, happen with the right policy climate in parliament.

During the past few months, since our review sessions, the various focus groups have been meeting to develop action plans. The overarching theme of all of the groups is to try to make Benalla a more connected and liveable community. At our July BSFG meeting, we heard reports from each of the groups, followed by discussion and suggestions to take back to their members. These reports are available on our website (bsfg.org.au), so please take the time to read them and contact me if you would like to join one of the groups.

Peter Holmes

Next General Meeting

Our next meeting on the 22nd September is expected to feature Cr Laura Binks, Mayor of Strathbogie Shire Council, to talk about their Climate Emergency declaration, and actions taken and planned to reduce emissions. Laura will also comment on their recent 'Meet the Planners' tour of the Shire, and the responses to that initiative.

7.30 pm Thursday 22nd September 2022

Benalla Uniting Church Fellowship Room

**Guest speaker: Cr Laura Binks
Strathbogie Shire Mayor**

Supper will be served at the conclusion of the evening.

*Judy Schwarzman
Secretary*

"Earth provides enough to satisfy every man's need, but not every man's greed." - Mahatma Gandhi

U3A Sustainability Group

The U3A Sustainability group has been most fortunate to have group member John Lane take up the convenor's role, following on from John Lloyd, who convened the group for 13 years before his recent move to the Bendigo area.

Trained as an urban and regional planner, John brings to the role a 40-year career in a range of environment related jobs, mostly in policy and strategy as well as managing various programs covering land use planning, pollution control, natural resource, coastal and catchment management, climate change mitigation and adaptation and biodiversity conservation, work which took John from Victoria to Cape York Peninsula, southeast Queensland and a number of small island states of the southwest Pacific.

Initially sharing his role with former CSIRO scientist Frank Dunin (who also moved away recently), John's sessions are thoughtfully planned and engaging. In July, for example:

'The Sustainability group began the preparation of an integrated sustainability index that attempts to integrate the social, environmental and economic elements of sustainability; a replacement for Gross Domestic Product (GDP) that is currently used in Australia which focuses only on economic indicators. The New Zealand government is preparing a draft Wellbeing Index. Our index is based on the 17 United Nations Sustainable Development Goals (SDGs) as the primary organising system. We had a go at drafting targets, measures, indexes and scores for these goals. We discovered it's not an easy task.

The group also looked at what was needed to achieve a net zero carbon energy system for Australia. We compared two approaches from advocates to 'electrify everything' on the understanding we will eventually achieve carbon-neutral electricity production. The first was a bottom up (household up) approach proposed by Rewiring Australia and the second was a top-down approach proposed by the Clean Energy Council. We then considered these pathways with the Federal government's policy it took to the last election. We found that the new government's policy generally matched the primary steps each of the advocates propose.'

John Lane, U3A Sustainability Group Report, U3A Newsletter.

The U3A Benalla Sustainability group meets twice a month, on the first and third Fridays from 10 to 12 midday in the U3A Meeting Room at the Seniors Community Centre.

Check the [Sustainability](#) group's page on the U3A Benalla website for more information.

New members welcome!

Contact John Lane on 0474 936 460.

Bev Lee



Australia's First Commercial Thermal Energy Storage

Mars Petcare Wodonga uses a good deal of gas to produce pet food. To reduce their gas consumption they are embarking on Thermal Energy Storage (TES).

An article on the [ABC News website](#) explains the technology behind the venture.

Finland recently unveiled the world's first 'sand battery' and that was hailed as a break-through. The TES system to be installed in Wodonga is based on graphite rather than sand and is being manufactured by an Australian Company, Graphite Energy based at Lake Cargelligo in Central NSW.

'Like the Finnish sand battery, the Wodonga TES system purchases renewable electricity from the grid when it's cheapest and converts this to heat through resistive heating (like an electric bar-heater). This heat is then stored in the graphite blocks at temperatures of up to 900C.

The modular design can be scaled up. A single container has a capacity of about 3 megawatt-hours of thermal energy, which is equivalent to the amount of electrical energy stored by a large neighbourhood chemical battery.

In practice, the battery is designed to be charged and discharged at the same time, which means that over the course of a day it can process up to 8 MWh of thermal energy.

When heat is needed, water is run through pipes within the seacrate, and converted to high-pressure steam, at temperatures of 150-250°C. This heat is then used wherever it's needed. In the case of the Wodonga factory, it will cook pet food'.

It is exciting that this technology is now being deployed in Australia (and locally) to displace gas.

Another article on graphite TES appeared in a [Renew Economy article](#) by Giles Parkinson on 10 August: Graphite Storage Technology gets ARENA funding for heat and power applications.

A 5 MWh pilot plant is to be built by MGA Thermal. This appears to be a bit more sophisticated, using 'small particles of an alloy embedded within the graphite blocks'. (By melting the alloy you get a phase transition and can store more heat per cubic metre).

It is easy to see how this type of 'thermal battery' can be used to replace gas in industrial uses where medium to high temperatures are required. They are not so likely to be used for electrical purposes though as the round trip efficiency to turn the stored heat back into electrical power is just not high enough.

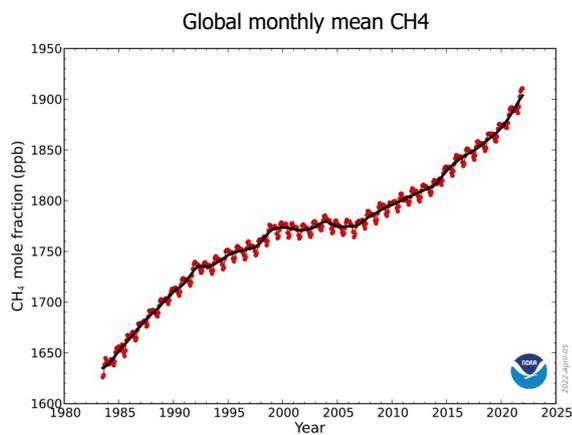
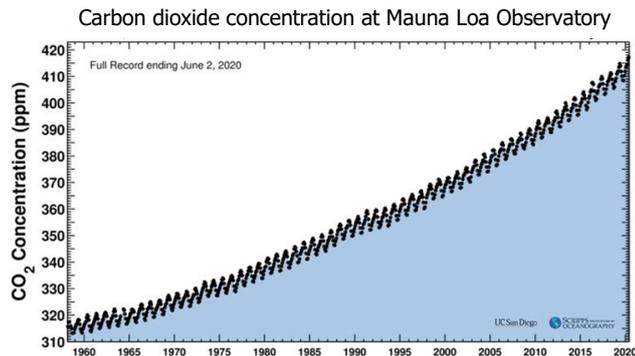
The same day (10 August) Renew Economy had an article about Genex Power buying a massive solar and battery project in Queensland. They plan to kick off the first stage of development with a 400 MW, four hour battery - one of the biggest in Australia. This will be used for arbitrage - storing PV power during the day and deploying it over the evening and morning peak periods.

For longer term storage for those occasions when 'the sun doesn't shine and the wind doesn't blow' we will need to rely on pumped hydro storage.

Ian Herbert

Methane and Dodgy Accounting

Periodically I look up and publish the CO₂ and methane emission graphs. It's never good news.. Here are the most recent ones:



The CO₂ graph continues on its cumulative way. That's because each year the world emits roughly the same amount of CO₂, despite the Paris COP pledges and despite a pandemic that confined much of the western world to barracks.

It's the methane graph though that makes me shudder. As I have said before, unlike CO₂, methane (CH₄) is relatively short lived in the atmosphere with a half life of about 10 years. It reacts with ozone and breaks down into CO₂ and water.

Because it has a short half life, you would expect a graph of methane emissions over several decades to level off IF emissions remained constant. But you can see above that the graph is ACCELERATING UPWARDS. That indicates that the amount being emitted each year is growing exponentially.

Methane is about 25 times as potent as CO₂ in trapping heat. It is measured in parts per billion rather than parts per million but is still a significant contributor to global warming, especially as it ends up as more CO₂ in the atmosphere.

Dodgy Accounting

Now I'll talk about the dodgy accounting. In newsletter 31 last November I published the image at right. It shows a sample of Australian abnormal methane concentrations over 2019. The source is from ESA Copernicus/Sentinel-5P Satellite data.

I posed the question then, "If we can see it from space, why are we not doing something about it?"

One simple reason is that we don't measure it and it is not included in Australia's emissions tally. Instead, fugitive methane emissions are accounted for as a simple best-case percentage of gas production.

Very dodgy!

Another dodgy bit of accounting is being examined by a committee led by former Chief Scientist Ian Chubb and that's the way in which Australia's carbon credit scheme is operated. This all hit the fan [back in March](#) when Professor Andrew Macintosh blew the whistle on the integrity of the government scheme. His criticisms were too much to ignore, coming from such a recognised authority. The committee is to report back in December of this year.

To cap it all off, just before the last elections Angus Taylor, then the Minister for Emissions Reduction (an oxymoron?), changed the scheme to allow fixed price government contracts to be traded on the open market after paying an exit fee. This [totally disrupted the market](#) and potentially gifted millions in windfall profits to some private companies. His accounting talents were obviously recognised by his party as post-election Angus was then appointed Shadow Treasurer.

Next we come to the matter of the government's 43% emissions reduction target for 2030. The integrity of the offsets is a major concern as they are needed to achieve the target (40 MTCO₂-e or about 10% of the reduction).

The final accounting trick is to ignore all the new fossil fuel projects that are in the pipeline or to pretend that the emissions from these new sources would be miraculously offset or sequestered.

Ketan Joshi [in a RenewEconomy article](#) calculates the combined effect of all the proposed new projects and the figures are truly overwhelming. Even if only half go ahead they will wipe out all of the 43% reduction.

Let's look at the figures. To achieve the 43% reduction we need to remove 366 MTCO₂-e of emissions over seven years. If the proposed new projects go ahead then they will produce about 150 MTCO₂-e per annum. That's not counting the whopping 1400 MTCO₂-e of exported emissions (mostly from coal). You can see clearly now why The Greens are pressing hard for no new fossil fuel projects.

It's time to stop burying our heads in a fracking well.

Ian Herbert



Sustainability: Whose responsibility is it?

As an organization the members of BSG all try to do their bit to tread softly on this earth. We attempt to spread the message locally so that more of our fellow citizens will join in to create a sustainable neighbourhood. Are our individual and collective efforts achieving the goal?

We know that Australians are at the top of the list for CO2 emissions per capita. It's easy to see why. Being an affluent society we consume a lot, travel a lot and have vehicles that use lots of fossil fuel. Our extractive industries create lots of emissions. Our large homes are poorly insulated and we use lots of electricity and gas. We also run multiple appliances. In the process we create lots of waste.

So individually we try to lower our footprint. We can see the solutions. Just work through the list of 'sins' above and you can work them out: buy less, give up air travel, change to an electric vehicle, insulate your house and throw out the beer fridge. We're also told that eating less meat helps and to avoid plastics.

But none of this comes easily or without cost or sacrifice.

Author John Sparrow recently spoke on an [ABC RN 'Big Ideas'](#) program and a summary appeared on the [ABC News website](#). He says that corporations are quite happy to make us feel guilty about our individual footprints. They are very supportive of programs which put the onus on individuals e.g. recycling your plastics. "We're told we consume too much, we're too greedy, we're too lazy, we surround ourselves with disposable plastics and we're spoiling the planet."

Humans can even be seen as at fault "merely by existing", he says.

"Sometimes the argument extends to suggesting that humans are kind of a plague ... infesting nature and bring[ing] ruination on the planet."

Well, I disagree with him. I think we humans are the problem. We worked out how to harness all that underground energy and now we are hooked on it. And there are definitely too many of us.

Our individual actions do help and the best example of this is rooftop solar. It doesn't matter whether your motivation is financial or for the good of the planet, as long as greenhouse gas emissions are reduced. But let's face facts. Many of us as individuals may be willing to live a less consumptive life but the majority of the Australian population just want to get on with their lives the way they were 'pre-pandemic'. There is a wealthy cohort whose activities scoff at any acknowledgement of a climate emergency.

Corporations are driven primarily by shareholder return. They will pursue any opportunity to make money, only limited by market size, competition, finance and regulations. Only if it is to their benefit will they reduce emissions.

So we have to turn to governments to achieve our goals, particularly 'Net Zero by 2050'. We ask them to apply the carrot and the stick to achieve that target.

The new federal Labor government has come in promising action, including legislating a 43% cut in emissions by 2030. As our BSG President says in his message this issue, they have given us some room for optimism (compared to the last lot). To my mind they

still have not grasped the urgency of the problem. Opening up [new offshore oil and gas exploration](#) areas just confirms that fact. We now rely on a new crossbench of independents and the Greens in the Senate to hold them to account. The Climate Wars are not yet over.

That the Government still goes along with the falsehood of carbon capture and storage shows that they are still in bed with the fossil fuel companies.

Dr Mark Diesendorf from the UNSW was a speaker at our 2014 Swanpool Environmental Film Festival. He has continued his work on examining paths to a 100% renewables grid. Writing in [The Conversation](#) he outlines the uphill task we have in front of us to achieve that target. His findings confirm the need to cut consumption.

In conclusion the Sustainability problem needs to be tackled throughout society - at the individual level, at the corporate level and through the leadership and actions of government. The urgency is more apparent every day.

Ian Herbert

Some Disturbing Facts:

Carbon Capture and Storage is a Chevron's Gorgon gas plant has failed to sequester carbon. Chevron promises to 'make good the shortfall'! How?

The SANTOS Barossa offshore gas project will pipe gas onshore to Darwin. It won environmental approval last February. A [court case](#) is currently underway with traditional owners regarding the pipeline. The extract contains 1.5 tonnes of CO2 for every tonne of gas. The company says they will use carbon capture and storage to sequester about 25% of the CO2.

Retrofitting Older Buildings

A recent article by Lloyd Alter in Tree Hugger is relevant to the Retrofit aspect of our ESD & Retrofits Group, [The Reuse Imperative: Why Saving Existing Buildings Matters More Than Ever](#). In the article Lloyd considers his position on old buildings; should they be replaced or retrofitted. He concludes that it has nothing to do with the embodied emissions of the existing building, but of its replacement.

"Preserving and upgrading a building is far more energy- and carbon-efficient than knocking it down and building new. Calling the new building 'green' when it replaces an existing building is a farce when it takes so much energy to build. But what matters is the embodied energy of the future building, not the past."

The article contains links to many other articles on the topic including perspectives on heritage buildings and calling for working with climate advocates to position building reuse as a carbon offset.

In May this year two members of our REB/CEP group completed Voluntary Home Energy Efficiency Advisor Training provided by the [Hume Community Power Hub](#). We will continue our sessions on building efficiency as part of the [REB Reduce 1/3 Strategy](#).

Peter Maddock

Ecological Sustainable Planning and Development and Retrofits Group.

Ecological Sustainable Development and Planning

I have been doing research on Ecological Sustainable Development since the formation of our BSG Review Group. I found a September 2018 PhD Thesis by Peter Bennet, Australia's National Approach to 'Ecologically Sustainable Development': Success in Principle, Failure in Policy, Still in Prospect, <https://openresearch-repository.anu.edu.au/handle/1885/156800>.

"The thesis concludes that, properly understood and incorporated into an appropriate policy framework, ESD is a coherent and viable concept, one which remains in prospect when and if society returns the problem of general environmental decline to the top of the public policy agenda." Ecologically Sustainable Development is an Australian approach to [Sustainable Development](#). I am up to page 128 of 476!

Further ESD research has led me to the Victorian Governments Environmentally Sustainable Development of Buildings and Subdivisions, <https://www.planning.vic.gov.au/policy-and-strategy/environmentally-sustainable-development-of-buildings-and-subdivisions> where there is a download for [A roadmap for Victoria's planning system](#). This Roadmap document looks at ESD in many areas related to sustainable buildings and subdivisions.

One issue we are often concerned about in new subdivisions is the apparent lack of consideration of house orientation. This roadmap outlines a program to introduce new ESD planning policies and standards that will help, for instance improve building energy efficiency and support the transition to a low emission future by ensuring buildings are sited and orientated to optimise energy efficiency and encourage the use of renewable energy.

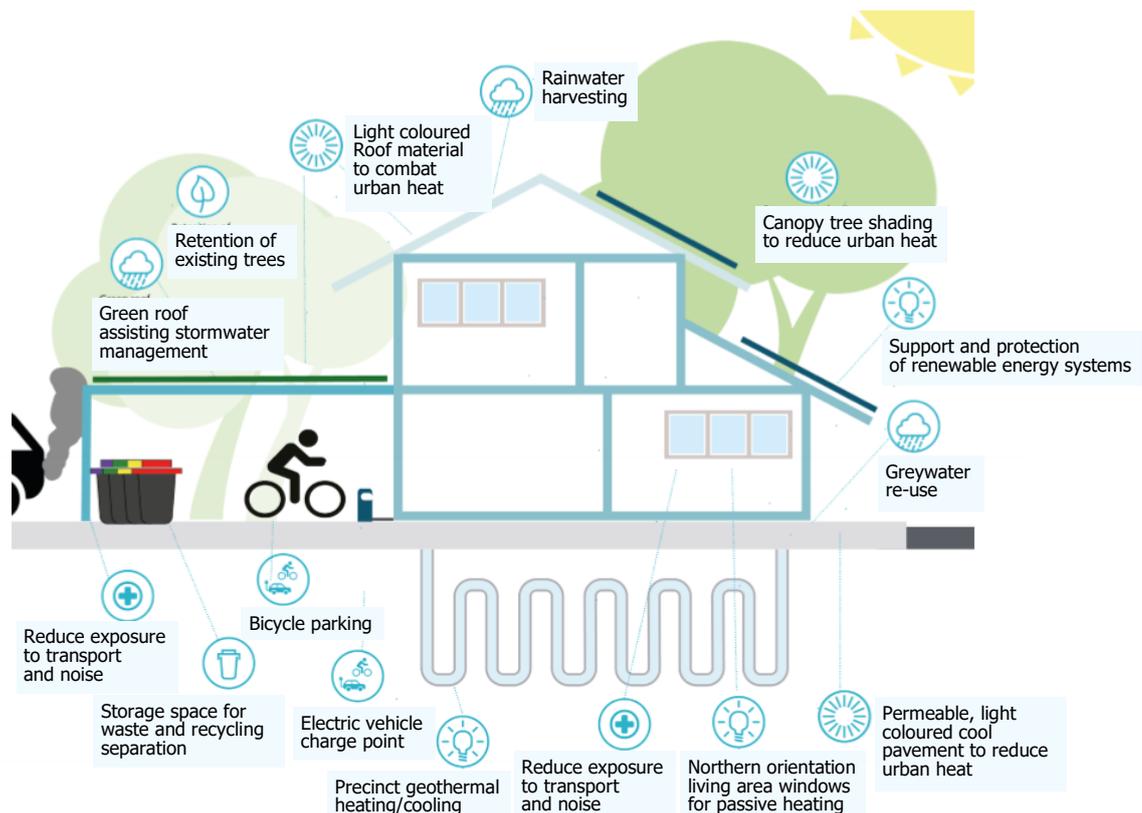
The Council Alliance for a Sustainable Built Environment, CASBE also has resources available for their related Sustainable Subdivisions Framework, <https://www.casbe.org.au/resources/sustainable-subdivisions-resources/>.

ESD assessment tools available include [Green Star](#) developed by the Green Building Council of Australia (GBCA), [EnviroDevelopment](#) developed by the Urban Development Institute of Australia (UDIA), and [BESS](#) the Built Environment Sustainability Scorecard developed by CASBE. BESS is the only dedicated tool in Victoria for assessing sustainable design at the planning permit stage. [CASBE membership](#) is open to all Victorian councils.

My initial search about Ecological SD has led me to finding the encouraging development of Planning for Environmental SD in Victorian subdivisions. I will continue to investigate Peter Bennets thesis on Ecological Sustainable Development as the [Ecological Footprint](#) by the Footprint Network indicates globally we are exceeding the biocapacity of the planet. This year, [Earth Overshoot Day](#) fell on July 28. A good reason for emphasising the Ecological in Sustainable Development.

Peter Maddock

Ecological Sustainable Planning and Development and Retrofits Group.



Example of ESD planning responses for new buildings

Random Thoughts on (De)Growth

I've been having some email exchanges of late about transitioning from fossil fuels but we should first consider, or at least concurrently consider, the question of Growth. It is very apparent that businesses and governments would like to return to the 'good old days' of high growth as fast as possible.

Businesses are crying out to ramp up the skilled migration scheme. To give the current government it's due, there is now more emphasis on training our own rather than robbing other countries of theirs.

We could also rethink our own priorities. For instance, in my previous article, it is admirable that Mars Petcare is replacing gas with (hopefully) renewable electricity but do we need to feed and pamper so many pets?

We were talking about the new houses being built around Benalla and the housing estate layouts. Even local government wants growth and the extra rate revenue that brings in. State governments rely on stamp duty for a large part of their income and that is levied on a percentage basis. Likewise real estate agents. The percentage should have come down but has it? I would think not.

So the first question which should be asked is why do we need all this new development?

In an [article in The Conversation](#) Kate Shaw at the University of Melbourne questions the endless expansion of our cities and urges us to work with what we have. She argues against the City of Melbourne's draft spatial plan which proposes new suburbs to the west and to the north.

Kate Shaw says that better doesn't mean bigger and that, 'Now is not the time for anyone to announce that their city will become 'bigger and better'. Cities don't have to get bigger to evolve, and sooner or later all will have to reckon with the concept of degrowth'. It's an article well worth reading.

Perhaps the growth in Benalla is just a case of people wanting to move to the country.

We've also been talking about the orientation of houses on suburban blocks. Richard Felton has drawn our attention to the Council Alliance for a Sustainable Built Environment (CASBE; Strathbogie Shire is a member but not Benalla City). On their website they list energy efficiency measures. For subdivision design their framework:

- Considers options to change the street layout to enable 75% of lots with the rear or (of?) the property to face west, north or east - which is supported by aligning streets to the compass points as part of site layout
- Looks to introduce behaviour change programs for new residents
- Considers opportunities to introduce design guidelines to influence energy efficiency in dwellings.

In Benalla the streets tend to be oriented to the compass points. Most houses now have a double garage at the front and if this is west facing then the occupants are somewhat shielded from the hot westerly sun. The living space can face north and the roof space can support solar. With the large footprint of the house on a small block you might have room for a small tree out front to further shade the house.

Ian Herbert

The Time Value of Carbon

This article is from Lloyd Alter at Tree Hugger, ['Time Is as Important as Tech When Fighting Climate Change'](#).

The Time Value of Carbon (TVC) is the concept that greenhouse gas emissions cut today are worth more than cuts promised in the future, due to the escalating risks associated with the pace and extent of climate action. 'The Time Value of Carbon arises from the ruthless maths of climate science. We need to think in terms of carbon stocks, as well as flows, because carbon dioxide (CO₂) continues to warm the planet for many decades after it is released. Globally, we emitted around 40 billion tonnes of CO₂ in 2020 despite the economic impact of the pandemic. At this rate, we will exceed the carbon budget for 1.5 degrees of warming by 2030.'

'Here we have investment advisors, accountants, climate scientists, and architects all talking about the time value of carbon - the 'now' carbon being added to that big ledger in the sky, all pointing out that emissions cut today are worth more than emissions cuts in the future.' [The 1.5°C lifestyle carbon budget](#) is 2.5t CO₂ per capita by 2030. We cannot wait for new technology to achieve the Paris targets. Avoided emissions NOW are required to achieve this reduction. We need to think beyond our direct emissions and consider the emissions embodied in everything we purchase and do. Per capita emissions from an international flight could exceed the 2030 budget of 2.5t CO₂. A 15,000 km Big Lap 4WD/RV trip around Australia would emit about 7.3t CO₂. Lloyd Alter is the author of [Living the 1.5 Degree Lifestyle: Why Individual Climate Action Matters More than Ever](#).

Peter Maddock

Contact Details:

BSFG President

Peter Holmes
0438 625 638

Vice President

David Blore
0407 885 410

Secretary

Judy Schwarzman
0407 315 082

Treasurer

Wendy Baker

Committee Members

Peter Maddock Karen Nankervis
Kay Blore Kevin Smith
Kate Holmes

Coordinator Benalla Food Co-op

Susanne Bennett
0408 286 307

Newsletter Editor

Ian Herbert
limaeaster@bigpond.com

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**Benalla
Sustainable
Future
Group**

www.bsfg.org.au