

A (time poor) partial response to the WA government's Climate change in Western Australia Issues paper September 2019. I am a [REDACTED] year old private citizen who happens to agree with the views put forward by a number of environmental groups which I have quoted. I am OK about my responses being shared.

2 | Industry innovation

Your thoughts

5. How can the Government of Western Australia foster clean industries and technologies?

The Labor Government of Western Australia has the power to insist that our LNG industry pays to offset the MASSIVE emissions from its current projects (32 million tonnes per year!) and could reverse its decision to encourage the expansion of this devastatingly energy-intensive industry (which is at least as high an emitter as the coal cycle).

These emissions catastrophically overshadow all other efforts to reduce emissions in all other sectors within our state. We are reduced to telling ourselves "Oh well, we should still try to do our little bit. It all helps." etc. knowing that the sum total of all our efforts is being blown out of the water by an industry that without mandatory offsetting will quite obviously prevent us from reaching our Paris target of Zero emissions by 2050.

Payment by the industry for offsets (estimated to be as little as 2% of profits!) as proposed earlier this year by the EPA would fund thousands of jobs in renewables, carbon farming (of many and varied kinds) and forestry.

'Clean State WA has released independent analysis from **RepuTex Energy**, revealing around 4,000 new jobs would be created in land management, renewable energy, and other industries if the state government reinstated and strengthened conditions requiring WA's largest polluters to offset greenhouse gas emissions.'

I know a number of young men who are ashamed to admit that they work in this industry - to keep a roof over their families' heads, while knowing that in doing so, they are contributing to the deterioration of their children's future wellbeing...

The Government could show its good faith re its 'aspiration' of zero emissions by 2050 by immediately adopting a carbon budget that will clearly allow us to realise this vital aspiration. WA born and raised Bill Hare, who has become a world authority on climate change, with his group Climate Analytics has produced the very thing that is needed, handed on a platter, to the WA government!

'A 1.5°C Compatible Carbon Budget for Western Australia: WA's role in implementing the Paris Agreement and capturing opportunities in a decarbonising global economy' (2019)

3 | Future mobility

Your thoughts

1. What are the barriers to purchasing a low-emissions vehicle for your household/ business?

Like all my friends are saying, an e-car will definitely be our next car, in a year or two. Until then, we drive a 2010 Honda Jazz hatchback using 5-6L/100kms.

2. What can be done to facilitate the uptake of electric and other low-emission vehicles in Western Australia?

- A conditional 'cash for clunkers' e-car/e-ute subsidy. Subsidies should be conditional on:
 - a) the applicant having sufficient rooftop PV to charge their car
 - b) verifiable recycling of their oil-driven vehicle using say, ~8L or more per 100km, for which conversion to electric is not feasible.

In 2011-12 I co-managed with my partner Rob Gulley Environment House's contract with Synergy to deliver its WA government-funded HEP (Hardship Efficiency Program)/FRS (Fridge Replacement Scheme). The FRS replaced fridges made before significant efficiency improvements were introduced in the 2004 MEPS (Minimum Energy Performance Standards) Yes, Synergy had to keep an eye on the fridge supplier's operation to ensure that degassing and crushing of clunkers was carried out in all cases; inevitably there would have been a few old fridges that would have corruptly and/or carelessly slipped through cracks to become beer-and-bait fridges out in hot sheds....

I think a subsidy for an e-car would actually be easier to run and more scam-proof!

- Subsidised (full or part) e-taxi charging, via PV-powered taxi-only charging stations, acknowledging that they are on the road all day and much of the night. I foresee more taxi use in future as more people give up their own cars (or 2nd family car) with a transport plan (enhanced by METRONET of course) that encompasses most or all of these options: walking, cycling, public transport and taxis as a last resort when necessary. Such a subsidy will enable registered e-taxis to compete better with exploitative Uber and similar operations, by lowering their fares to reflect that they have free PV fuel.

3. How can we further encourage use of public transport and active transport, such as walking and cycling?

It's great to see the significant WA government commitment to future cycling infrastructure in Perth/Peel. Country towns could be invited to survey locals who live up to, say, 10kms from the township, re possible bike use if safe cycle paths/cycle lanes were made. Those with the strongest cases should also have access to that \$146m commitment or future funds.

4. How can we ensure that Western Australia isn't left behind in the transition to cleaner transportation?

- Doing all the above, plus heavy lifting through COAG for a mandatory fuel efficiency standard and possibly a fuel excise duty; ie a creative mixture of WA based positive and Federal negative incentives should be developed. (some carrot, some stick!)
- WA government support for developing the (renewably-produced) hydrogen fuelling of heavy long-haul transport within our state, the 'Hydrogen Highway' proposed by the Hydrogen Society of Innovate Australia. *Perth to Port Hedland - Highway 95.*

4 | Regional prosperity

Your thoughts:

• How will climate change affect your regional community?

It is inevitable that more and more people who are in a position to leave Perth (with its 4-5 months of ever-lengthening runs of days in the high 30's-40's) will head 'down south' probably mainly to the Rainbow and Leeuwin-Naturaliste Coasts. Current residents of towns in these areas need to ensure that our LGA's plan for this influx in a rigorously sustainable way, managing new developments in a water-wise and fire-wise way, as well as for best possible conservation of the natural environment. The expected ongoing influx of 'climate

refugees' (of which I am one!) has the potential to severely compromise these healthy and attractive environments.

What matters should the State Government take into account in developing a strategy for carbon farming in Western Australia?

- The State Government should, in developing its strategy for Carbon Farming, be honest with farmers about the scale of emissions requiring offset opportunities:
A Goomalling farmer speaking for Farmers for Climate Action at an event I attended recently was passionate about the offsetting expectations on the farming community via the many kinds of carbon farming, tree planting etc. She told of the willingness of the farming community to put their shoulders to the wheel and play their part to save Life on Earth as we know it! But she expressed her despair about the LNG industry producing 32 million tonnes of GHG^e per year, before the Burrup Hub even comes into being! She asked how realistic it was, for farmers to be expected to offset more than a token proportion of the pollution from this whole WA LNG juggernaut? She reminded her audience that these land-based 'solutions' are not always wind and weather proof. You can lose a whole planting of tree seedlings in a single storm, etc.
- Mark Howden, director of the ANU Climate Institute and an IPCC vice-chair co-authored a special report on climate change and land, released 8 August 2019. He emphasises that for farmers/rural land managers (who between them manage 48% of Australia's acreage) mitigation and adaptation measures are often not so different, ie can be win/win, but an overarching national strategy is needed.
- I believe that the WA government should fill gaps not addressed by the current Federal Government rather than wait for them to act appropriately - given all the counter-productive right-wing political shenanigans that seem to beset rural/regional issues on the Federal stage.

5 | Waste reduction

Your thoughts:

- ***What areas can we target to further reduce greenhouse gas emissions from waste?***

The WA government must ensure (providing a little funding as necessary) that all Council waste facilities are dealing 100% effectively with the greenhouse-intensive refrigerants in discarded fridges, at no cost to residents. I don't believe this is happening well on a widespread basis.

- ***What can households, businesses and government do to reduce their waste and compost more?***

More compost education should be carried out with WA government support. The Waste Authority funds an interesting set of project applications twice yearly. (My partner Rob Gulley and I worked on one through Environment House in 2014-15 providing compost workshops and home setups through agencies supporting low-income migrants.) But the Waste Authority does not provide ongoing funds for home composting education.

A Compost Education program (covering bins, tumblers, wormfarming, bokashi and sheet mulching) could be overseen by WALGA's Waste officers. Anyone who wants to start home composting should have access to a training workshop and if things get in a mess – as occasionally they might - there should be someone they can call to help them deal with it.

I realise FOGO will be implemented Metro wide over the next few years, but for the 10% or so of Western Australians willing and keen to compost at home, 'forgoing their FOGO' may save their Council money – less waste being transported and dealt with by staff at FOGO composting sites etc.

6 | Safe and healthy communities

Your thoughts

1. What are the main climate risks for your household or your community? What can be done to manage these risks?

I believe more and more people from metro Perth will soon want to move to the cooler climate regions, if they can. I am a climate refugee myself – I moved to Denmark in 2014 at the age of 62; I couldn't take the longer, hotter summers of Perth any more. It felt like a heatwave from mid-November to late April, with too few patches of respite! I get headaches in sustained heat, and often too from the inevitably sudden temperature changes from air-conditioned car/shops etc. to outside heat. I also like to grow my own vegies and knew how much easier that would be in a cooler climate. **I note that this Issues Paper says Perth is expected to be an average 2.7°C hotter by 2030. Who knows how much hotter than that it will get by the end of this century?**

So our 'risk' down here on the south coast is increasing numbers of 'climate refugees'. Although I live in on a property owned and managed by our community association 15kms from town (comprising 16 households) that takes fire preparation VERY seriously, I believe that encouraging newcomers into the existing townships – with infill - with an appropriate network of safe foot and bike paths is so much better than enabling car-dependent sprawl into fire-prone bushland. I know of a number of older widowed women who are seeking lowish cost housing in Denmark because the climate here will better suit their health. WA's Housing Authority can have some constructive involvement in further provision of modest but minimise.

2. What are your biggest concerns about Western Australia's future climate?

There is little doubt that bushfires will become more frequent and more potentially devastating. I believe we will see more arson-starts to bushfires, possibly exacerbated by methamphetamine use. Danger to human life and homes is always paramount of course, but forests are our carbon sinks as well and should also be protected when possible.

I don't believe we should rely any more on bringing firefighting aircraft from the northern hemisphere when needed; we've watched in dismay as the Californian fires of late Autumn have overlapped with Australian fires of late spring. Australian states' fire seasons pretty much overlap, so we cannot be always rely on sending aircraft around Australia. There are only 160 firefighting aircraft in Australia and most of these are small. Firefighting experts are telling us we need more and bigger aircraft. The WA government should audit its ready access to appropriate size and number of these aircraft.

3. What could be done to ensure your community is better prepared for possible climate impacts?

Every household outside townships in rural/regional WA to be required to submit its fire preparation returns every Spring - with appropriate boxes to tick, with some flexibility to show alternatives (with justifications) to their LGA. The WA government will need to mandate that local government collect these annual 'Fire Prep Returns' and run random checks to verify the honesty of responses, and advise on remediation if plans are inadequate.

7 | Water security

1. *What can we do to encourage Western Australians to use water more efficiently and adapt to a drying climate?*

I am pleased to learn that from 2001 -2018, water efficiency initiatives have supported reductions in water use by consumers in Perth from 191,000L per yr (ave 523L/day) to 123,000L (ave 337L/day) saving 109 billion Litres of scheme water since 2001. I guess it's fair to say the tools have been persuasion + price rises. But with further dropoff in rainfall and groundwater and the serious expense of recycling and desal. projects, I think we can and must go considerably further...

a) WATER TANKS!

I quote from our Water Corporation's website:

<https://www.watercorporation.com.au/home/faqs/water-supply-and-services/why-isnt-it-for-all-new-homes-to-have-rainwater-tanks-compulsory->

"The costs and yields from a rainwater tank can vary significantly in Perth. Our weather patterns can result in tanks being full at some times of the year and empty at other times, such as in summer and other periods of low rainfall. (My note: That's why we've had the practice for many years of encouraging plumbing in of watertanks to toilets/laundries. This is still required for watertank rebates here in Denmark.) We support customers who choose to install a rainwater tank but don't believe that this cost should be introduced to all new homeowners. New houses are generally quite water-efficient as building codes require the use of water efficient appliances, lot sizes are relatively small and waterwise planting and hardscaping are often used to reduce water use. For this reason, large scale installation of rainwater tanks remains an option for the future."

I believe it's time to take up this 'option for the future!'

A bad example, close to home:

A new development 4.7kms east of Denmark (Springdale Beach) managed to get Council approval a few years ago for mains water to be supplied, with no requirement for buyers to put in water tanks! They are BIG blocks (mostly 3000-4000m²) and Denmark, although dryer than ever in recorded history, still has some summer rains, which can replenish tank water.

Water Corporation is running a 'Waterwise Towns' project here currently but how UNwaterwise is Springdale? New and often controversial real estate developments in smaller towns often involve developers doubling as Councillors, as are often depicted in Australian small town soapies! In a state like WA with 138 LGA's it is FAR better for a state government to make some rulings on such matters. The quote from Water Corporation's website above says '**lot sizes are relatively small**'. True in some places, not in others. What about Water Corp making a tank compulsory for blocks of 500m²+. Water Corp could go one better than Synergy supporting SolarReturn PV buyers to get a loan through Macquarie Bank. For lower income residents Water Corp could fund the tanks itself and get customers paying them off in their bills over a negotiated period of time, such that customers would own it before it needs replacing.

My two-person home near Denmark runs entirely on tankwater. Our cement tank is 55000 Litres (put in by my late parents 40 years ago) is used with a pump and a whole of house filter, so we have wonderful rainwater to drink and wash in year-round. Depending on how extensive and well-designed the guttering is on house, shed etc. a tank this size could fill 5-8 times through the year. That's a lot of water! After 5 years drinking rainwater I cannot bear the taste of tap water elsewhere so take bottles of rainwater to Perth when I go. I cannot imagine why others arriving as retiree Sea Changers with a fair bit of money, judging by their houses and cars etc. would not wish to do likewise.

What I am saying is that they should HAVE to do likewise, to lessen the draw on Denmark's scheme water which is soon to be trucked, then piped over from near Albany. (btw, for our vegie garden we have access to water from a soak on this property shared with 15 other households managing its water resources for gardens, carefully and cooperatively.)

I am surprised that there are no longer any rebates for watertanks apart from a few particularly water-stretched towns. I had heard, years ago, that there was significant uptake when rebates applied in metro Perth. I believe water tanks (plumbed into toilets and/or laundries to recognise the risk of bird dropping contamination re kitchen water) can be an education re water wastage in themselves, as well as reducing the need for mains water.

Families installing tanks can ask each other, ***How far can we stretch our tank water?*** (Country people - beyond town water supplies - grow up knowing how to manage with what's in the tank, dam etc.) It could encourage less extravagant clothes washing regimes than many households currently practise. Does this garment really need washing? Could I just give that spot a bit of a rub? Or air out a garment worn just once? I worked in an EcoShop for many years and heard many women admit (or men complain about them...) washing 3+ loads **every day** which then go straight into electric dryers (using ~5 Units of electricity per load!)

b) CARROTS AND STICKS TO GET WATER CORPORATION CUSTOMERS TO REDUCE THEIR USE!

I am aware that our Water Corporation tries hard to encourage bigger users (for whom the bills don't bite enough!) to reduce their use. I believe that after fair warning - and in the absence of medical justification - the flow to such addresses should be **restricted**, until they sign an agreement to limit their usage to a lower level, with their future usage watched.

I don't believe the Water Corporation's emphasis on usage by suburb is fair, though I am sure it has helped. Some people's bills tell them that their usage is above or below their suburb's average with congratulations dispensed accordingly. Why should Water Corp entrench a 'class system' of water use, almost seeming to endorse the much higher watering of 'tall poppies' (to use a metaphor from an exotic garden.) I believe that residents of wealthy suburbs should know what **metro-wide averages** are as well as what their suburb peers are doing.

<https://www.watercorporation.com.au/save-water/check-your-suburbs-water-use>

You can check suburb by suburb averages (for 2015-16 and 2016-17)

Note: I have converted WC's figures from Litres/yr to L/day. I have been doing the admin side of energy and water auditing projects for 11 years and we believe **average Litres per day** is by far the best currency for the public to grasp.

The following figures are given (I have just selected a handful.)

Dalkeith and Floreat **843L/day** very few unit complexes, big blocks, possibly favouring exotic gardens

Nedlands **759L/day** more unit complexes and possibly more native gardens from my observation

Bayswater more units, and also more native gardens 534L/day

Girrawheen **569L/day** lower income, with above average household size likely.

Armadale **518L/day** lower income, with above average household size likely.

2. Are there policies adopted in other jurisdictions we should consider for WA?

1) TARGETS! Well publicised, for households.

I believe we should follow the lead of the 5 Melbourne water corporations who for many years now have used well-advertised **TARGETs**, currently '**TARGET 155' (155 L/day per person)** It is a great educational tool. Families can work out how to ration this target between household and garden

usage and plan garden changes, re-use practises and devices, shorter showers, less clothes washes accordingly.

OR what seems better/fairer to me than Melbourne's one size fits all target is to clearly differentiate between those with gardens, and those without.

eg 160L per person with garden/80L per person with no garden - Something like this?

Note: Perth average usage PER HOUSEHOLD for 2017-18 was 337L/day. 2016 Census showed household size for Perth metro was 1.9 persons. $337L/1.9bods = 177L$ usage per person per day.

2) LEAK FIX services!

Sydney Water provides free leak fixing to all, by the sound of it.

<http://www.sydneywater.com.au/SW/your-home/helping-you-save-water/waterfix-residential/index.htm>

I think this is over-generous, though clearly Sydney Water finds it worth their while!

I believe that instead, our Water Corporation could provide a **one-off service** (for most applicants, but not all if not considered capable) where the attending plumber can show and tell adult householders (if appropriate) to do a simple washer change and/or recognise where a tap may need re-seating or replacing in the future, leaving clear written instructions/diagrams, plus an email with links to a reputable Australian instructional video preferably on Water Corp's own site! For very low income households with no-one capable of carrying out these tasks, free leak fixing should be provided as needed. (It will save Water Corporation in the long run, not having to deal with bad debts for runaway leak-induced water bills.)

3) What are the best management options to deal with the water security implications of climate change for our agricultural sector?

Lots of help is needed for farmers to move towards water conserving practices such as regenerative farming, no tillage, diversification with dry land cropping with ideas from dryer countries around the world. I believe Minister McKiernan is positive and proactive on these matters!

As well, the WA government's current push to get the long-awaited **Pastoral Lands Reform package** enacted is a constructive and exciting step forward, to enable real landcare with tourism etc to be a real option for pastoralists for appropriate parts of the land they manage – vs the hitherto compulsory stocking of badly degraded lands that has been the status quo.

8 | Liveable towns and cities

What energy efficiency standards or disclosure measure do you support for our homes and offices?

Mandatory rating certification for existing homes

As I am involved in a small eco-auditing (Home Sustainability Assessment) business (Green Services) I was pleased to be alerted by this paper to the **COAG Trajectory for low-energy buildings**. I have signed up for updates!

WA should introduce mandatory rating certification for existing homes being offered for sale. Such a move has been talked about for at least 10 years. It is definitely something a state government can do without Federal support! **It is already being done in the ACT.**

How can we improve the retention of vegetation, particularly tree canopy, in our cities and suburbs?

This is a challenge when in-fill is being considered. The City of Bayswater has recently proposed rezoning some areas (near Meltham station) for higher density; I am impressed that its plans appear to be taking care to insist on maintaining or enhancing vegetation. (Currently when a house on a large block is demolished for multiple dwellings, a 'clearfell' approach resulting in fence to fence paving for two cars per dwelling is too-often used by developers.) With 30 metro LGA's, some oversight by state government of retention of vegetation in planning should occur, rather than just leaving it up to the good will of individual Councils to do this well or badly...

10 | Protecting biodiversity

Your thoughts

- 1. Can existing land use and biodiversity management practices be modified to reduce vulnerability and improve resilience?***

'Reducing deforestation and forest degradation rates represents one of the most effective and robust options for climate change mitigation...' (Seymour and Gibbs, IPCC 2019)

Forests for Life's paper **Forests for Climate** reminds us (because it's easy to forget!) that *'Because of the time lag between emissions and temperature increases, global warming will continue even after we stop burning fossil fuels. We need to draw carbon out of the atmosphere as a matter of urgency and to do this, forests and other major bio-carbon sinks are our best hope.'*

(The passage below has been blatantly plagiarised verbatim from WAFA's 'Forests for Climate' document! I saw no point in paraphrasing.)

So, what needs to be done?

We must:

1. Protect native forests as biodiverse carbon stores
2. Restore cleared and degraded areas to native forest ecosystems
3. Transition the timber industry to sustainably managed plantations and farm forestry
4. Develop a strategic approach to prescribed burning by abandoning the annual burning target; burning small, strategic areas close to town-sites and infrastructure to keep fuel levels low; and allowing low-fuel level, long-unburnt ecosystems to develop
5. Rule out native forest bioenergy.

We must remember:

- Mature, biodiverse, ecologically intact forests capture and store the most carbon. They are more resilient and reliable carbon sinks than logged and plantation forests are, even accounting for the carbon stored in wood products (Keith et al, 2014; Keith et al. 2015).
- Old trees draw down more carbon than young trees (Stephensen, 2014) and it takes at least 150 years for a clear-felled forest to reach 90% of the carbon- carrying capacity of an old forest (Roxburgh, 2006).
- The vast majority of logs sold from native forests each year (in WA, 85%) become paper, fuel-wood

and sawdust, which quickly release their carbon to the atmosphere. (Dean, Wardell-Johnson and Kirkpatrick, 2012).

- Massive volumes of carbon are also released in the forest when the branches and reject logs are burned after the logging operation (Lindenmayer & Mackey, 2015).
- At a local climate level, forest protection and restoration can provide climate resilience and adaptation we desperately need in the South West. Even as global warming accelerates, forest protection and restoration are vital to local resilience and adaptation.
- Land-clearing in SW Australia has caused up to 62% of the region's rainfall decline (Andrich and Imberger, 2013). **Protection and restoration of forests offer the best promise of rain.**
- Forests are a part of the climate system, so the feedback goes both ways. Forests are critical in our efforts to adapt to and mitigate dangerous climate change. However, they also suffer from the effects of a changing climate. Increased temperatures and reduced rainfall are increasingly putting tall forests under stress. The increasing severity of fires is having major impacts on forests here and around the world. We need to look after the forests and give them the best chance of adapting to climate change or their own sake, and so that they can do the best possible job of mitigating dangerous climate change for the all of the creatures and ecosystems on the planet.

11| Strengthening adaptive capacity

Your thoughts

1. Are there gaps in the availability of adaptation knowledge, climate information or skills for your community, organisation or sector?

YES re GAPS! Climate change denialism on one hand and the understandably intense and passionate focus on mitigation by climate-concerned citizens probably allows little room for addressing the gaps in adaptation knowledge. Local government has an essential role to play here, with careful planning regimes and public awareness campaigns that are matter-of-fact about the **climate-changing and climate-changed reality ahead.**

2. What are the main barriers to the adoption of effective climate change adaptation?

Residual but powerful climate change denialism still present in the community is still resulting in the election of some Councillors and MP's who reflect that stance. Denialists who are public figures but who are starting to waver (in the face of the ongoing onslaught of evidence!) may feel reluctant to support adaptation initiatives because it will imply that they should also support mitigation efforts and they may have to admit they've been wrong!