

**Dr Stephanie Hing** BVSc (Hons), MSc Conservation Science, PhD

---

### **Climate change in Western Australia Issues Paper – Public submission**

It is heartening to hear that the McGowan Government is planning an integrated policy approach to tackle climate change and transition our state to a low carbon economy. As a conscientious WA voter and as a conservation scientist, I welcome the opportunity to participate in this public consultation. Here I provide brief comments on some of the key topics posed in the Issues Paper.

There is scientific consensus that climate change is caused by greenhouse gas (GHG) emissions from human activities including electricity generation, extractive industries, agriculture, transport, industry, waste, and land use<sup>1</sup>.

As mentioned in the Issues Paper, climate change drives a wide range of present and future risks to water security, fire incidence and severity, biodiversity, agricultural production, food security and human health and well-being. In addition to these challenges, climate change also poses a risk to global financial stability<sup>2</sup>, occupational health and human productivity<sup>3</sup>, plant diseases, and animal health and welfare<sup>4</sup>. As described by a coalition of twenty three former fire and emergency services leaders, the devastating impact of climate change is perhaps no more stark than in the catastrophic bushfires occurring presently across numerous Australian states and territories<sup>5,6</sup>.

Given the dire consequences of climate change as summarised above, it is crucial that the McGowan Government follows through with the proposed plans to adopt an integrated policy approach to tackle climate change and transition to a low carbon economy.

#### **Transforming energy generation**

WA has the potential to be a leader in renewable energy generation, utilising our wealth of solar, wind and other renewable energies<sup>7</sup>. As highlighted by Tayal *et al.* (2017)

*“WA has the highest solar radiation levels in Australia, and is the third-windiest region in the world...It also has an extensive 12,900 km coastline – providing significant wave and tidal energy potential. This makes a high penetration of renewables on WA's networks a technical, economic and politically pragmatic target for policy makers...”*

It is promising that the McGowan Government has released The Energy Transformation Strategy, Renewable Hydrogen Strategy and Future Battery Industry Strategy. However, contradictorily the McGowan Government has also rejected Environmental Protection Agency (EPA) recommendations on GHG emissions and facilitated the expansion of the Liquefied Natural Gas (LNG) industry<sup>8</sup> despite the significant GHG emissions of LNG output<sup>9</sup>. There is little point producing renewable energy strategy documents if any potential

reductions in GHG will simply be negated by the expansion of fossil fuel industries in WA. I would urge the McGowan Government to make decisions that are consistent with the plan for a low carbon economy.

### **Industry innovation**

WA businesses and organisations play a key role in climate change action. In 2019, while working for a WA charity, I witnessed significant measures implemented by the organisation to lower emissions – namely the installation of solar power infrastructure. It is therefore troubling to hear reports that the McGowan Government is considering “*scrapping or winding back subsidies for rooftop solar panels*”<sup>10</sup>. Rather, the Government of WA should foster clean industries and technologies by ensuring renewables and battery technologies are affordable and accessible to commercial (and residential) consumers.

### **Future mobility**

It is heartening to hear that the McGowan Government is investigating options to accelerate the uptake of full electric vehicles. Personally, the main barriers to conversion to full electric vehicles are cost and the fact that grid power is still largely derived from fossil fuels. Government subsidies (for example in the form of discounted licence and/or vehicle registration) and converting the grid to renewables would encourage greater adoption of full electric vehicles. In addition, the provision of the necessary infrastructure (for example charging stations) would support adoption. Some local governments are supporting the novel use of full electric vehicles (for example Fremantle Council trialling full electric garbage trucks).

It is promising to hear that the McGowan Government is investing to improve cycling infrastructure and public transport. Making roads safer for cyclists and public transport more reliable, accessible and affordable will transform transport in our city. More broadly, Perth’s approach to town planning must change in order to future proof our city. In 2018, WA’s Scientist of the Year Peter Newman highlighted that Perth “*could not have both urban sprawl and sustainability and needed to instead focus on building dense central hubs...rather than expand the metropolitan area*”<sup>11</sup>.

### **Regional prosperity**

The impact of climate change on rural WA cannot be underestimated. It has been reported that “WA farmers feel they are being forgotten in the drought” and countless stock and native wildlife are suffering and dying in across rural WA due to drought<sup>12</sup>. Drought resilience research and development are essential but WA producers must also be supported in the present day to implement necessary changes. For example, Farmers for Climate Action have compiled ‘climate-smart agriculture’ resources<sup>13</sup> and the Western Australian No-Tillage Farmers Association (WANTFA) summarise how their growers in south-west WA can mitigate and adapt to climate change including changing farming practices, genetics, infrastructure and timing of on-farm activities<sup>14</sup>.

## **Waste reduction**

It is a positive step that the McGowan Government has a vision for WA to become a sustainable, low-waste circular economy and has begun putting this policy into action (including the passing of legislation to limit the distribution of lightweight plastic shopping bags and state government funding for the Plastic Free Foundation). Support should also be forthcoming for other home-grown WA initiatives that aim to reduce GHG emissions from waste including non-government organisations (for example Oz Harvest), start-ups (for example Kooda the community composting program), small business (for example zero packaging bulk-foods stores) and grassroots organisations (for example the Hilton Harvest Community Composting Bank). Recently, major events including markets<sup>15</sup> and professional conferences<sup>16</sup> have sought to be single-use plastic waste free. State government small grants could assist more event organisers in WA to adopt these practices and reduce waste. Local governments should also support residents to reduce waste (for example our local government offers subsidised compost bins, free workshops on composting, worm farming and low-waste cooking).

## **Safe and healthy communities**

Climate risks became very personal on Saturday November 16, 2019, Perth's hottest November day at 40°C<sup>17</sup>. Despite being a healthy, fit individual, drinking water throughout the day, I found myself in a Perth hospital with clinical signs consistent with dehydration and heat exhaustion. My case is by no means unique and is simply part of a wider and more alarming picture of the human health risks of climate change<sup>18</sup>. There will increasingly be days where it is too risky to undertake normal day-to-day activities. For example, in Sydney this week bushfire smoke has led to recommendations for "*children, the elderly and anyone with heart or lung conditions should avoid exercising outdoors*"<sup>19</sup>. As alluded to in the Issues Paper, there are also clear causal links between climate change and poor mental health<sup>20</sup>. It is clear what must be done to manage these risks, transition away from unhealthy fossil fuels and to a healthy 100% renewable future.

## **Water security**

*"As Perth gets even hotter and drier...we can no longer afford to let any water go to waste"*<sup>21</sup> yet never have I ever observed so many people and councils wasting so much water irrigating expanses of lawn and pavements. Having grown up inter-state under strict water restrictions, my personal observation is that many people in Perth have a very cavalier attitude to water. This relationship with water must change if we are to adapt to a drying climate. While WaterCorp's Waterwise program is a good start, community awareness campaigns are not enough. Water restrictions must be tightened and enforced. In addition, households and industry need ongoing support to transition to water conserving ways of living, gardening and doing business.

## **Liveable towns and cities**

Climate change is likely already affecting the liveability of Perth neighbourhoods. It is probable that many of Perth's suburbs are and will be increasingly subject to the urban heat island effect due to diminishing tree canopy and the proliferation of hard, heat retaining surfaces<sup>22</sup>. Instead of designing and constructing urban wastelands, WA planning policy and practice must retain vegetation and build sustainable communities that remain liveable in a changing climate.

## **Protecting biodiversity**

We must do everything possible to protect WA's unique terrestrial, aquatic and marine biodiversity from the devastating impact of climate change. The Issues Paper summarises the actions that are urgently needed to conserve biodiversity in a changing climate including restoring habitat connectivity and protected areas. It is absolutely critical to "*improve resilience...[by] addressing existing stressors*" and future threats.

As we highlighted in our 2014 paper in the journal *Conservation Physiology*, climate change has the potential to negatively impact on the health, welfare and survival of native fauna but further research is required to investigate these impacts and how best to monitor and mitigate them<sup>23</sup>. A notable omission from the Issues Paper is the epidemiological impact of climate change on wildlife disease including zoonotic emerging infectious diseases. We detail these impacts in our 2016 paper in the journal *Wildlife Research*<sup>24</sup>.

## **Legislation**

Lastly, I would urge the McGowan Government to implement a *Zero Carbon Act* to ensure that the transition to a low-carbon economy is enshrined in law. Such an Act would establish a binding target of net zero greenhouse gas emissions in Western Australia by 2050 and implement shorter-term 'carbon budgets' for the State. Such legislation would ensure everyone including government, industry and the community are all clear on what is required to reach targets.

## **Conclusion**

I urge the McGowan Government to continue pursuing an integrated policy approach to tackle climate change and transition to a low carbon economy. I strongly encourage you to prioritise long-term sustainability, health and wealth over short-term, unsustainable profit. Please consider all available scientific research and use it for effective, evidence based decision making.

## References

1. Oreskes, N. The scientific consensus on climate change. *Science* **306**, 1686–1686 (2004).
2. Christophers, B. Climate change and financial instability: Risk disclosure and the problematics of neoliberal governance. *Ann. Am. Assoc. Geogr.* **107**, 1108–1127 (2017).
3. Lines, L., Kjellstrom, T., Otto, M. & Lemke, B. *0398 Climate change threats to occupational health and productivity at population level.* (BMJ Publishing Group Ltd, 2017).
4. Lacetera, N. Impact of climate change on animal health and welfare. *Anim. Front.* **9**, 26–31 (2018).
5. Pitman, A. J., Narisma, G. T. & McAneney, J. The impact of climate change on the risk of forest and grassland fires in Australia. *Clim. Change* **84**, 383–401 (2007).
6. ABC Radio. Former fire chiefs escalate call for action on climate change. <https://www.abc.net.au/radio/programs/worldtoday/former-fire-chiefs-escalate-call-for-action-on-climate-change/11703684> (2019).
7. Tayal, D. Achieving high renewable energy penetration in Western Australia using data digitisation and machine learning. *Renew. Sustain. Energy Rev.* **80**, 1537–1543 (2017).
8. Cox, L. WA relaxes emissions curbs on new projects, despite its gas plants driving national rise. *the Guardian* <http://www.theguardian.com/australia-news/2019/aug/29/western-australia-loosens-emission-reduction-requirements-for-new-major-projects> (2019).
9. Australia's greenhouse gas emissions climb on rising LNG output. *Reuters* (2019).
10. Mercer, D. WA Energy Minister Ben Wyatt considers pulling plug on solar panel subsidies | The West Australian. (2018).
11. Smith, B. WA Scientist of the Year says Perth's urban sprawl is unsustainable | PerthNow's WA Scientist of the Year. *Community News Group* (2018).
12. Stanley, M., Field, E. & Varischetti, B. Why WA farmers feel they are being forgotten in the drought. *ABC Rural* <https://www.abc.net.au/news/rural/2019-10-26/wa-farmers-keep-quiet-and-carry-on-during-west-coast-drought/11603882> (2019).
13. Farmers For Climate Action. Climate Smart Agriculture: Getting started. [https://www.farmersforclimateaction.org.au/climate\\_smart\\_agriculture\\_getting\\_started](https://www.farmersforclimateaction.org.au/climate_smart_agriculture_getting_started) (2019).
14. WANTFA. Farming with climate-change in south-west Western Australia. (2016).
15. Johns, D. Scarborough Sunset Markets return to foreshore for 2019 | PerthNow. (2019).
16. Sinclair, E., Birkmanis, C. & Pemberton, R. We organised a conference for 570 people without using plastic. Here's how it went. (2019).
17. Thomas, L. WA weather: Records tumble as Perth sweats through hottest November day since records began | PerthNow. (2019).
18. Woodward, A. *et al.* Climate change and health: on the latest IPCC report. 2014 doi:10.1016/S0140-6736(14)60576-6.
19. Kidd, J. Sydney smoke 'unlikely to clear for days' as bushfires burn around NSW - ABC News (Australian Broadcasting Corporation). (2019).
20. Berry, H. L., Bowen, K. & Kjellstrom, T. Climate change and mental health: a causal pathways framework. *Int. J. Public Health* **55**, 123–132 (2010).
21. MacFarlane, D. Is Perth really running out of water? Well, yes and no. (2018).
22. Young, E. Perth's low-shade suburbs join national 'urban heat island' study. (2019).
23. Hing, S., Narayan, E., Thompson, R. C. A. & Godfrey, S. A review of factors influencing the stress response in Australian marsupials. *Conserv. Physiol.* **2**, cou027 (2014).
24. Hing, S., Narayan, E., Thompson, R. & Godfrey, S. The relationship between physiological stress and wildlife disease: consequences for health and conservation. *Wildl. Res.* **43**, 51–60 (2016).

- END -