



Submission on the Victorian draft Guideline for assessing and minimising air pollution in Victoria

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26 July 2021

Thank you for the opportunity to comment on the Victorian draft Guideline for assessing and minimising air pollution in Victoria.

About the Centre for Air pollution, energy and health Research (CAR)

[CAR](#) is a Centre of Research Excellence funded by the National Health and Medical Research Council. The centre brings together more than 30 researchers at the forefront of their fields, based in seven of Australia's leading universities. CAR is the only group of its kind nationally to bring together researchers focusing on health impacts of air pollution, and new versus traditional forms of energy. The centre supports teams of researchers in the fields of epidemiology, exposure assessment, toxicology, chemistry, biostatistics and clinical respiratory medicine to pursue collaborative projects and to develop their capacity. Our centre's vision for a healthier community is the driving force behind our research.

CAR is facilitating and translating research on moving to alternative, renewable forms of energy that have the most beneficial (or least detrimental) impacts on health, the environment and the economy, considering a technology's life cycle. CAR researchers and affiliates have been involved in numerous publications relating to the health impacts of air pollution in Australia. For example, this year CAR researchers published an assessment of the health-related impacts of long-term exposure to anthropogenic (human-made) particulate matter (PM), and found impacts cost the Australian economy an estimated AUD\$6.2 billion annually (Hanigan et al 2021).

General comments

We commend Environment Protection Authority Victoria (EPA) for the development of a comprehensive document that utilises a risk assessment framework to pursue human health protection from poor air quality.

We note the introduction of the general environmental duty (GED) under the *Environment Protection Act 2017* (as amended by the *Environment Protection Amendment Act 2018*), requiring a health risk minimisation approach to pollution exposure, as far as reasonably

practicable. We also note the guidance in EPA's publication 1856 (dated September 2020) on what constitutes reasonably practicable, outlining the six factors that must be considered to demonstrate reasonable practicability.

We also note the documentation of health-based air quality assessment criteria (AQACs), including for the criteria pollutants (e.g. nitrogen dioxide, sulphur dioxide, and particulate matter). Concentrations for the criteria pollutants are articulated in the Environment Reference Standard for the Victorian *Environment Protection Act 2017*¹.

We wish to raise two concerns with the guideline in its current iteration. Firstly, **we are concerned by the reference in the reasonably practicable publication (#1856) to cost as a factor to consider**, specifically the consideration that 'the investment required to implement the control(s) is disproportionate to the risk of harm, and therefore implement that control(s) is not considered *reasonably practicable*' (p.13).

In relation to air pollution, the risks to human health from exposure to airborne emissions can occur at very low levels. For example, recent research conducted by CAR affiliates (Hanigan et al 2019) supports evidence that adverse health effects from long term exposure to fine particulate matter with a diameter of 2.5 micrometres or less (PM_{2.5}) – a common emission from many industrial sites – can occur at concentrations well below the current Australian National Environmental Protection Measure (NEPM).

Health impacts from exposure to air pollutants can include death, as well as the exacerbation of existing diseases, such as cardiovascular, respiratory, metabolic and neurological diseases (Landrigan et al 2018).

Secondly, **we are concerned about the concentration values for several health-based AQACs** tabled on pp.56-63 of the guideline. While we acknowledge that the guideline specifically states that AQACs are risk-based concentrations that should not be interpreted as pollution thresholds, our position is that there is no "safe" level of air pollution.

CAR recommends a continual reduction approach to air pollution guidelines/ standards over time (Zosky et al 2021), and this approach should be supported by the regular revision and reduction of AQAC concentrations. This approach is consistent with AQACs "...not being intended to be concentrations one can 'pollute up to' and must not to be interpreted as concentrations below which no action is required" (Section 6.1, p.53).

We also wish to highlight that the National Environment Protection Council (NEPC) has recently updated and strengthened the standards for nitrogen dioxide and sulphur dioxide as part of Variations to the National Environmental Protection (Ambient Air Quality) NEPM². We strongly recommend the relevant health-based AQACs, as well as the Environment Reference Standard, are updated to reflect these changes.

¹ Environment Reference Standard, section 93 of the *Environment Protection Act 2017* (No. S 245, 26 May 2021), accessed on 14 July, <gazette.vic.gov.au/gazette/Gazettes2021/GG2021S245.pdf>

² National Environment Protection (Ambient Air Quality) Measure (26 May 2021), accessed 31 May 2021, <legislation.gov.au/Details/F2021C00475>

References

Hanigan, I.C., Rolfe, M.I., Knibbs, L.D., Salimi, F., Cowe, C.T. (2019). All-cause mortality and long-term exposure to low level air pollution in the '45 and up study' cohort, Sydney, Australia 2006-2015. *Environment International*. 120: 394-403.
DOI: 10.1016/j.envint.2018.08.025

Hanigan, I.C., Broome, R.A., Chaston, T.B., Cope, M., Dennekamp, M. et al (2021). Avoidable mortality attributable to anthropogenic fine particulate matter (PM_{2.5}) in Australia. *International Journal of Environmental Research and Public Health*. 18(1): 254.
DOI: 10.3390/ijerph18010254

Landrigan, P.J., Fuller, R., Acosta, N.J., Adeyi, O., Arnold, R., et al (2018). The Lancet Commission on pollution and health. *Lancet*. 3;391(10119): 462-512.
DOI: 10.1016/S0140-6736(17)32345-0

Zosky, G.R., Vander Hoorn, S., Abramson, M.J., Dwyer, S., Green, D. et al (2021). Principles for setting air quality guidelines to protect human health in Australia. *Medical Journal of Australia*. 214(6).
DOI: 10.5694/mja2.50964

For more information

This submission has been produced by the Centre for Air pollution, energy and health Research (CAR).

For more information about CAR and our work the health impacts of air pollution: contact us at car@sydney.edu.au or visit our website: www.car-cre.org.au

