

Air pollution Inquiry

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Submission to the Inquiry into Air Pollution in Victoria

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Thank you for the opportunity to make a submission to the Inquiry into Air Pollution in Victoria. We note that Environment & Planning Committee's Terms of Reference include actions to minimise the health impacts of air pollution.

Summary

- There is no safe level of air pollution.
- Electric vehicles present an opportunity to reduce traffic related air pollution, however they need to be recharged from low-polluting power sources.
- Reduced vehicle volumes on road produce lower levels of air pollution, and active transport (eg. walking, cycling) has substantial health benefits.
- Wood heaters contribute significantly to air pollution both in urban and rural areas. Rapid gains in air quality could be achieved through regulation of 'real world' emissions and financial incentives to adopt less polluting methods of home heating.
- Given the health sector has a substantial carbon footprint, it could contribute more to reducing both greenhouse gases and air pollution

There is no safe level of air pollution, especially for fine particles and photochemical smog. The CAR has recently published a position paper on air quality guidelines (1). The current mechanism for setting air quality thresholds in Australia does not adequately protect population health. We believe this approach must be replaced by regulations focussed on harm minimisation using the principle of continual improvement, similar to the approach adopted by the European Union. However we appreciate that such regulations might lie beyond the terms of reference for this Inquiry.

We refer to a previous submission to the Victorian Parliament by the CAR together with the University of Melbourne, Melbourne Energy Institute, Clean Air & Urban Landscapes Hub, and other organisations. This submission recommended a significant reduction of fossil fuel power generation and internal combustion engine driven transport. It argued for increased capacity in real time measurements of air pollutants. It also recommended a widespread education campaign to inform Victorians about the health risks of air pollution. These recommendations are all still valid and we will only comment further on a few specific examples here. The full submission can be accessed at https://nespurban.edu.au/wp-content/uploads/2018/11/MEI-CAUL-CAR_submission_Clean_Air_Vic.pdf

Transport sector

Electric vehicles represent an increasing proportion of new car sales globally, but less so in Australia. They are a key technological development to support sustainable transportation, reduced greenhouse gas emissions and reduced traffic-related air pollution, compared with traditional internal combustion engines that use conventional fossil fuels (2, 3).

However, environmental and health co-benefits arising from increased electric vehicle use will only be realised if the source of electricity used to power the electric vehicles is derived from low air polluting energy sources. Where the infrastructure used to recharge electric vehicles is dependent on conventional fossil fuel combustion, then unequally distributed benefits could occur. In other words, there would be an unequal burden of polluting by-products in areas (of power generation) where the benefits of electric vehicles (lower air pollution) are not experienced (4). Electric vehicles will have net benefits on reducing air pollution if charged with gas- or renewable energy-powered electricity and these power plants are located distant from where people live.

Although tailpipe emissions from fossil-fuelled internal combustion engines will be markedly reduced in electric vehicles, other air polluting emissions such as fine and ultrafine particulate matter from tyre or brake wear and roadway dust dispersion can remain and still have the potential to impact on health.

The electric vehicle user charges recently introduced into the Victorian Parliament are not consistent with the health benefits from reduced air pollution. Many other countries such as Norway provide tax incentives, which have dramatically increased the uptake of electric vehicles.

Transitioning from passenger vehicles to active transport (eg. walking, cycling) and reducing vehicle volumes on roads have shown beneficial health impacts due to overall reduced air pollution, reduced environmental noise and increased physical activity (5, 6).

Wood Heating

Domestic wood-heating causes disproportionately higher impacts on air quality than many other common sources of air pollution. For example, just 4.4% of Sydney households use wood combustion as their main heating source, yet wood heater smoke contributes more to man made fine particle ($PM_{2.5}$ less than 2.5 thousandths of a millimetre in diameter) exposure (24%) in the Sydney Metropolitan Region annually than motor vehicles (17%) and power stations (11%) (7). Similar impacts are likely for Melbourne where there is a similar prevalence of wood heaters as Sydney (4%) with 25% in other regions of Victoria (8). Wood heaters have a high health burden not just for the household members, but also for the rest of the community as they increase pollution levels population wide. In Tasmania, it was estimated that 65 premature deaths annually were attributable to wood-heater emissions with an associated annual health cost of \$4,232 per heater (9).

Actions to reduce the number of wood heaters will rapidly improve air quality and health outcomes in both urban and rural areas. Actions should include incentives to change to alternative sources of heating and the introduction of standards based on real world emissions, rather than ideal emissions in controlled settings. Substantial progress has been already been made in Launceston, Tasmania with measurable health benefits (10). The Victorian state budget for 2020-21 contained \$335 million to replace older wood, electric or gas fired heaters with new more efficient heating and cooling for 250,000 low-income households. However, the details of this welcome policy have not yet been announced and we would encourage the Committee to follow up.

Health Sector

The health sector has a substantial carbon footprint(11) and is also a contributor to air pollution in some locations. The Department of Health is the principal funder of Victorian Hospitals, whereas the Commonwealth is the principal funder of community health services, including general practice and pharmaceuticals. Some sources of air pollution include onsite gas boilers for heating, hospital construction and transport vehicles. Hospitals can also directly emit other hazardous air pollutants such as mercury and dioxins. Sources that require attention include medical waste incinerators and ethylene oxide sterilising units. We note that the Victorian state budget for 2020-21 provided \$85 million for engineering upgrades and \$40 million to improve energy efficiency in public hospitals.

Gaseous Pollutants

Although fine particle (PM_{2.5}) air pollution is the major threat to health in Victoria, there are still concerns about photochemical smog in Melbourne. Ozone (O₃) concentrations are under the control of nitrogen oxide concentrations (NOx) all year round, which means that all mitigation strategies to reduce NOx will have positive ozone benefits. The Environment Protection Standard for O₃ (under review and not updated since 1998) is 80 ppb in a 4 hour period, which was exceeded 26 times between January 2000 and November 2019. However the World Health Organization (WHO) guideline for O₃ is more stringent at 50 ppb over 8 hour averages. This was exceeded 349 times since 2000 by the average of all Melbourne EPA sites(12). The more widespread adoption of electric vehicles (see above) would be expected to reduce photo-chemical smog in the future.

Conclusions

We reiterate the recommendations of our previous submission. We call for significant reductions of fossil fuel power generation and internal combustion engine driven transport. Although there has been some improvement in the public availability of air quality data, there is still a critical need for increased capacity in real time measurements of air pollutants. We also recommend a widespread education campaign to inform Victorians about the health risks of air pollution. The CAR would be happy to contribute educational resources and expert speakers for such a campaign.

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 related to air pollution and energy research. Our centre's vision for a healthier community is the driving force behind our research.

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 on the health impacts of air pollution: contact us at car@sydney.edu.au or visit our website: www.car-cre.org.au

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