



Submission on the New South Wales Government's Draft Clean Air Strategy

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Thank you for the opportunity to comment on the New South Wales (NSW) Government's Draft Clean Air Strategy.

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 the economy, environment and health, 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). In relation to New South Wales specifically, CAR researchers and affiliates recently modelled the health impacts of eight major sources of PM and found wood heaters constitute the most important source of ambient air pollution in terms of health impacts (Broome et al 2020).

General comments

No safe level of air pollution

We note with concern the long-term trends in monitored air quality in New South Wales as detailed in the Clean Air Strategy (the Strategy), specifically the rising annual average PM_{2.5} concentrations and the plateauing annual average nitrogen dioxide (NO₂) concentrations. Recent evidence confirms that adverse health effects as a result of exposure to PM occur at low levels (Hanigan et al 2019), well below the current Australian National Environmental

Protection Measure (NEPM). In other words, there is no safe level of air pollution exposure in terms of human health. Health effects range from deaths due to, and exacerbation of, cardiovascular disease, respiratory disease, metabolic disease and neurological disease (Landrigan et al 2018). While we commend the acknowledgment of health impacts at both high and low air pollution levels in the Strategy, relying on thresholds and compliance with the NEPM is not an adequate approach in order to optimise health outcomes for people living in New South Wales (Zosky et al 2021).

Contribution of anthropogenic emissions to air pollution

We also note that for the 2013 Greater Metropolitan Region (GMR) and Sydney inventories, the primary contributors to anthropogenic fine PM emissions were from coal mining and domestic wood heaters respectively. While we commend the expected announcement of coal-fired power station closures as we transition away from the combustion of fossil fuels towards renewable energy sources, continued strong commitment away from coal-fired power stations and coal mining is required to address the disproportionately high burden on human health that coal mining causes in the GMR.

In relation to domestic wood heaters, we hold serious concerns that the proposed government actions, as articulated in the Strategy, will be insufficient to address the health burden of domestic wood heaters in both the GMR and Sydney regions. Recent modelling highlights the health burden of domestic wood heaters in both these regions, with 180,000 life-years protected from emission reductions following the phase-out of wood heaters over a 17-year period (Broome et al 2020).

Careful consideration of waste-to-energy policies

While we welcome the exploration of waste-to-energy policies and regulations that require waste facilities to employ best practice techniques, we advise caution to ensure that policies do not inadvertently result in increased air pollution emissions, with flow-on effects for human health. While there is a dearth of literature on the potential health impacts of waste-to-energy processes (Cole-Hunter et al 2020), the combustion of any material will generate pollutants – including many highly toxic substances - which may be harmful to human health. We recommend the implementation of complementary efforts aimed at waste avoidance and reduction.

Response to Draft NSW Clean Air Strategy Priority Actions

Better preparedness for pollution events

We commend and support the NSW Government's commitment to a comprehensive set of proposed actions on improved air quality monitoring, risk communication and education, and forecasting. We acknowledge and thank the NSW Government for its support of CAR (p.26 of the Strategy) and commend the commitment to ongoing research into the health impacts of landscape fire smoke. CAR researchers recently estimated the health burden attributable to bushfire smoke in NSW between October 2019 and February 2020; they concluded that over 200 excess deaths, over 1,000 additional hospital admissions and over 700 additional emergency department attendances were attributable to exposure to bushfire smoke (Borchers Arriagada et al 2021).

Cleaner industry

While we commend the NSW Government for its commitment to reducing emissions from the combustion of fossil fuels through clean energy initiatives and the retirement of coal-fired power generations, Australian Energy Market Operator (AEMO) projections suggest the NSW electricity generation mix will still be predominantly fossil-fuel based until 2032-33 (Figure 15, p.29 of the Strategy). With this in mind, and given coal mining's disproportionate impact on

PM emissions in GMR, we recommend the implementation of additional measures beyond those articulated in the Strategy to reduce emissions from these sources. The costs of additional pollution reduction measures will be offset by consequent health gains. Conservative estimates associated with life-years produced from the removal of power station emissions of nitrogen oxide and sulphur oxide emissions have a present value of AUD\$2.67 billion (Broome et al 2020).

Cleaner transport, engines and fuels

We commend and support the NSW Government's commitment to address emissions from non-road diesel vehicles and equipment as articulated in the Strategy, along with the commitment to transition to the use of electric buses. We strongly support a rapid transition toward deep penetration of electrical vehicles (EV) in the NSW fleet, and recommend investment and incentives to encourage EV infrastructure be implemented as a matter of priority. We strongly discourage the introduction of any tax-related disincentives associated with electric vehicle purchases, as have been introduced for consideration in other Australian states. On-road motor vehicle emissions disproportionately contribute to overall human exposure to air pollution due to the close proximity of vehicle emissions to human populations (Broome et al 2020). Respiratory-related health impacts in children have been reported at relatively low levels of outdoor nitrogen dioxide (a marker for traffic pollution), highlighting the need for constant reduction in exposure to vehicle emissions (Knibbs et al 2018).

Healthier households

Given the substantial contribution of domestic wood heaters to PM emissions in all regions of the GMR, we strongly recommend the pursuit of additional policies and actions to reduce emissions from this source. Based on research undertaken by CAR researchers and affiliates to date, we believe the current proposed actions in relation to domestic wood heaters in the Strategy are insufficient to address the contribution of domestic wood heaters to air pollution. Recent research completed by CAR researchers and affiliates in both Tasmania and the Sydney GMR found that when accounting for the health-related costs associated with wood heater smoke stronger wood heater standards and/or a replacement program are deemed highly cost-effective (Borchers Arriagada et al 2020; Broome et al 2020).

Better places

While urban planning and design is beyond the scope of our research remit, we acknowledge the importance of this area in the development of the clean air strategy.

Conclusion

We support the general thrust of the draft NSW Clean Air Strategy and commend the NSW Government for its recognition of, and commitment to, a number of important actions across the five priority areas identified in the Strategy. We do, however, emphasise that additional actions are required to reduce domestic wood heater and coal mining emissions. Further, a rapid transition to EVs is necessary to address transport-related emissions.

There is no safe level of air pollution and data presented in the Strategy demonstrate the substantial health impacts associated with poor air quality in NSW from a range of sources. The implementation of additional actions that strengthen the commitment to emissions reduction in identified priority areas will lead to reductions in health impacts that place undue pressure on the health system and unnecessarily burden the economy.

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