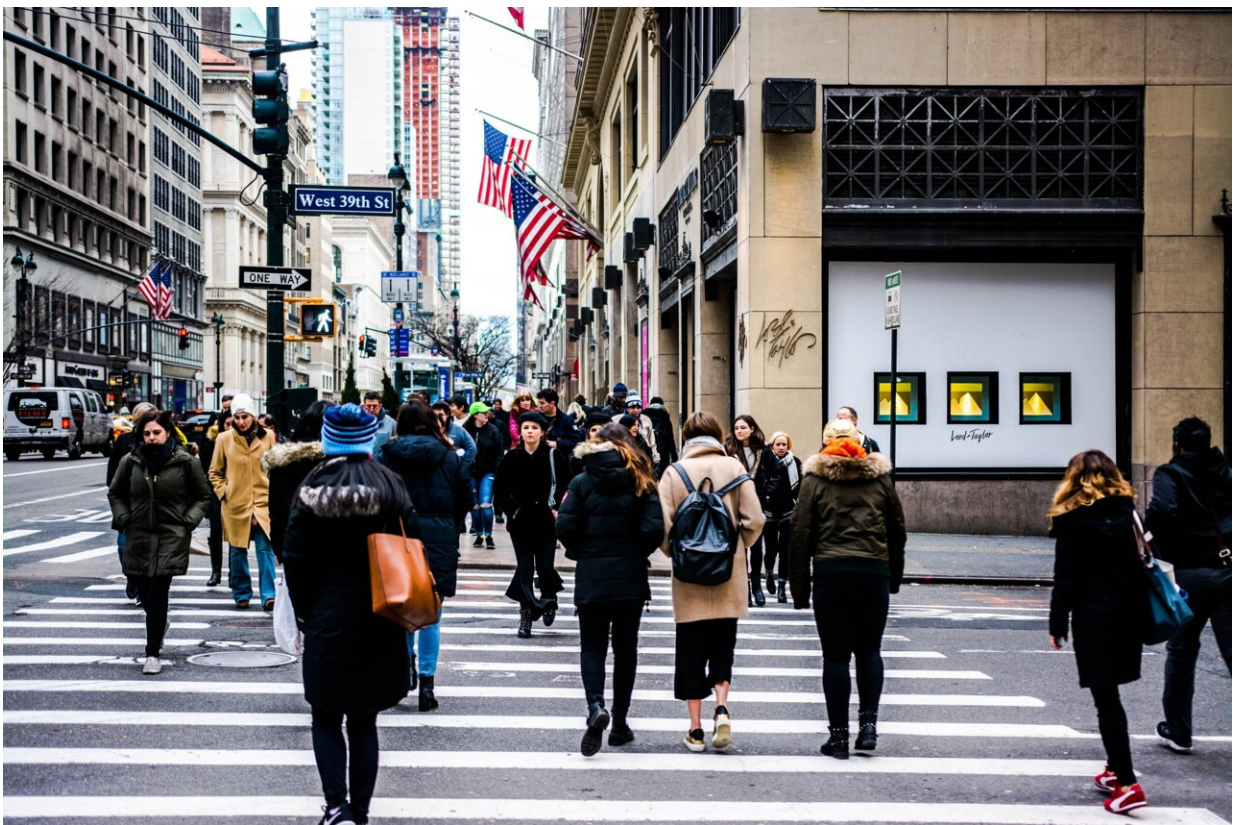


Decarbonizing Australia's transport system could solve significant public health challenge

November 15 2023, by Mark Stevenson, Rebecca Patrick, Avita Streatfield and Clare Walter



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The [road transport system is responsible](#) for almost 20% of Australia's fossil fuel emissions. Transport emissions have increased nearly 60%

since 1990 and Australia's per capita road transport emissions are 45% higher than the OECD average.

Transport emissions from the combustion of fossil fuels drive both [poor air quality](#) and climate change and represent an enormous challenge. At the same time, an enormous opportunity exists to intervene and achieve better climate and health outcomes.

The bad news: Transport pollution kills

Road [transport](#)-related air pollution creates an array of negative health impacts. Tailpipe emissions from [motor vehicles](#), for example, comprise a range of harmful air pollutants including [nitrogen dioxide](#) (NO₂), sulfur dioxide (SO₂) and [fine particulate matter](#).

Fine particulate matter (PM_{2.5}) arising from road transport [is associated with premature mortality](#), with the cumulative effects of both PM_{2.5} and NO₂ reported to increase the risk of cardio-respiratory morbidity and mortality.

The burden of disease attributable to road transport-related air pollution disproportionately affects children (including the unborn) and the elderly. Lung development is adversely affected, resulting in permanent stunting of lung growth in children, and impaired lung function for the remainder of their lives.

Up to [one-third of childhood asthma cases](#) are attributed to road transport pollution in Europe, and recent evidence indicates road [transport emissions play a significant role](#) in the high rates of childhood asthma in Australia.

Air pollution-related deaths [peak among babies](#) in their first month, often due to lower respiratory infections from PM_{2.5}.

These deaths then [peak again in the elderly](#), as air pollution contributes to lower-respiratory infections as well as [non-communicable diseases](#) that develop over time, including ischemic heart disease, stroke, COPD, diabetes, lung cancer and cognitive decline.

The good news—the solution is achievable

In a recent partnership between the University of Melbourne and the Climate and Health Alliance, we outline key opportunities to realize the co-benefits (environmental and health) of transport decarbonization.

In our report, "[Clearing the air: Transport decarbonization and our health](#)," we highlight several priority areas we should focus on to decarbonize Australia's transport system.

One area builds on Infrastructure Victoria's recommendations for planning reform that encourages enhanced compact urban form, through what they call 'density done well.' We need to move away from sprawling residential-only development patterns that limit the ability of children and adults to walk and or cycle for daily travel trips.

A transition from private motor vehicle use to [public transport](#) will also deliver overwhelming health co-benefits. This transition should incorporate electric micro-mobility (EMM) like e-bikes which both reduce pollution and deliver health benefits akin to those arising from moderate levels of physical activity.

Key strategies can be implemented now to set us on the pathway to decarbonizing our road transport system and at the same time deliver enhanced [health outcomes](#). Alongside moving to full electrification of the [road transport](#) system, we recommend:

- Implementing safe infrastructure, like cycling paths and car-free

zones, for increasing walking, cycling and EMM transport modes;

- Deploying and expanding shared EMM transport modes in cities, like the e-scooter sharing schemes first introduced in Brisbane and now in many of Australia's major cities;
- Advocating for the 20-minute city where most work, study, shopping and other amenities are all within short distances of homes, allowing increased use of active (walking and cycling), public and EMM transport modes;
- Developing transport policies that incentivize active, public and EMM transport modes. These can include policies like congestion charging, removal of street parking and low-emission zones;
- Ensuring equitable access to the transport system so no one is forced into using carbon-intensive private vehicles because there are no alternatives.

Electric vehicles are not a silver bullet for decarbonization

One important point we highlight in our report is that private electric vehicles (EVs) are not a panacea for decarbonizing the transport system and improving community health.

EVs still [produce some particulate matter](#) that has associated health impacts, and while carbon emissions are reduced compared to fossil-fuel combustion vehicles, this reduction is not enough to outpace the impact of population growth in major cities.

Because of this, switching to EVs without implementing the other strategies above will result in an overall increase in transport-related carbon emissions. Additionally, the life cycle environmental impact of

EVs is higher than traditional fossil fuel cars in relation to metal and mineral consumption and human toxicity from the extraction, processing, use and disposal of these components.

Without rapid, ambitious and decisive action to reduce the level of CO₂ in our atmosphere, the world as we know it will be altered irrevocably and human health will suffer.

Every city needs to act—there is an enormous opportunity to enhance our [health](#) while transforming the transport system.

Provided by University of Melbourne

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