

Thousands of Australian lives could be lost without rapid adoption of electric vehicles

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Credit: Nabeel Syed on Unsplash

New Swinburne University of Technology research reveals that Australia risks losing 24,000 lives by 2042 from transport-induced air pollution, and \$148 billion in net benefits, if electric vehicles are not rapidly adopted.

There are enormous environmental, social and [financial benefits](#) that can be achieved from adoption of electric vehicles in Australia. However, there are also huge health and subsequent economic implications given electric vehicles improve air quality and reduce illnesses from air pollution.

Swinburne researchers Associate Professor Magnus Moglia, Associate Professor Christian (Andi) Nygaard, Dr. Krzysztof Dembek and Professor Hussein Dia have mapped how many lives could be saved by an accelerated or aggressive adoption of electric vehicles in Australia in a new paper, "Air quality as a game-changer: Pathways towards large-scale vehicle electrification in Australia."

It is estimated 1,715 deaths in Australia were attributed to [vehicle emissions](#) in 2015. This was 42% more than deaths from car crashes the same year. Transport emissions have also been found to increase respiratory infections in [young children](#), impact children's cognitive development and have been linked to a range of illnesses such as Alzheimer's disease, bladder cancer, obesity and diabetes.

Australia already lags behind other nations in the adoption of electric vehicles. In 2021, only 20,665 electric vehicles were sold in Australia, which accounted for only 2% of new car sales. This is a far cry from the rest of the world, where 6.6 million electric vehicles were sold globally last year (9% of new vehicles sold). Delaying the introduction of electric vehicles in Australia not only slows down our efforts to reduce emissions, but also worsens [air quality](#) resulting in loss of life and ill health due to air pollution as well as put extra pressure on household budgets.

The researchers defined three scenarios for uptake of electric vehicles up to 2042 (slow, accelerated and aggressive). The key difference between the scenarios is the rate of electric uptake once a consumer

decides to retire their current vehicle.

Slow scenario—The slow trajectory represents the business-as-usual situation and is slightly higher than the current rate of sales of electric vehicles (5% with a 10% yearly increase).

Accelerated market-based scenario—The accelerated market-based scenario is in line with highest rates of adoption around the world, such as Norway where 60% of new vehicles sold in 2022 were electric vehicles, increasing by 5% every year.

Aggressive regulatory scenario—The aggressive regulatory scenario assumes all new vehicles would be electric in the base year as a result of new government regulations.

They found that the accelerated market-based scenario can decrease emissions save as many as 24,000 lives by 2042. The [emissions reductions](#) would be equivalent to 91% of Australia's emissions in 2021.

This scenario would cost governments around \$118 billion and result in total benefits, inclusive of household expenditure and petrol savings, exceeding \$260 billion. Any deficit from costs would be wiped out by 2027, with financial and economic benefits continuing to grow to by at least \$148 billion by 2042.

This is the first research of its kind, published in *Transportation Research Part D: Transport and Environment*. It was completed by researchers across Swinburne's Center for Urban Transition, Center for Social Impact and Smart Cities Research Institute.

EV researcher at Swinburne University of Technology, Professor Hussein Dia said, "This research shows that Australia risks losing up to 24,000 lives by 2042 from transport-induced air pollution if [electric](#)

[vehicles](#) are not rapidly adopted.

"This is equivalent to losing 1,200 lives every year over the next 20-year period. This tragic and avoidable loss of life would be like six planes, each carrying 200 passengers, falling out of the sky every year and killing everyone on board. We don't accept this in air travel and we should not be allowing this to happen in the context of preventable air pollution."

More information: Magnus Moglia et al, Air quality as a game-changer: Pathways towards large-scale vehicle electrification in Australia, *Transportation Research Part D: Transport and Environment* (2022). [DOI: 10.1016/j.trd.2022.103400](https://doi.org/10.1016/j.trd.2022.103400)

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