

A rapid shift to electric cars can save 24,000 lives and leave Australia \$148B better off over the next two decades

September 15 2022, by Hussein Dia, Christian A. Nygaard, Krzysztof Dembek and Magnus Moglia



Credit: Craig Adderley from Pexels

Reducing air pollution from road transport will save [thousands of lives](#)

and [improve the health](#) of millions of Australians. One of the quickest ways to do this is to accelerate the current slow transition to electric vehicles.

Our newly published [research](#) evaluated the costs and benefits of a rapid transition. In one scenario, Australia matches the pace of transition of world leaders such as [Norway](#). Our modeling estimates this would save around 24,000 lives by 2042. The resulting greenhouse emission reductions over this time would almost equal Australia's current [total annual emissions](#) from all sources.

We also calculated the total costs and benefits through to 2042. Australia would be about A\$148 billion better off overall with a rapid transition.

US transition to electric vehicles would save over 100,000 lives by 2050—study <https://t.co/FOByMhTqsW>
The future should be electric and save \$1.2tn in public health cost in U.S. alone.
How much in Australia? [#MorrisonFail](#) [#ClimateCrisis](#) [#EVs](#)
[#MorrisonMustGo](#) [#Auspol](#) [#LNPfail](#)

— Ray Marx & Robyn Deane (@marxdeane) [March 30, 2022](#)

Air pollution causes thousands of deaths

Every year, around [2,600 deaths](#) in Australia are attributed to fine-particle [air pollution](#). The main sources of this pollution are transport and industrial activities such as mining and energy generation.

An estimated [1,715 deaths](#) were attributed to vehicle exhaust emissions in 2015. This was 42% more than the [road toll](#) that year.

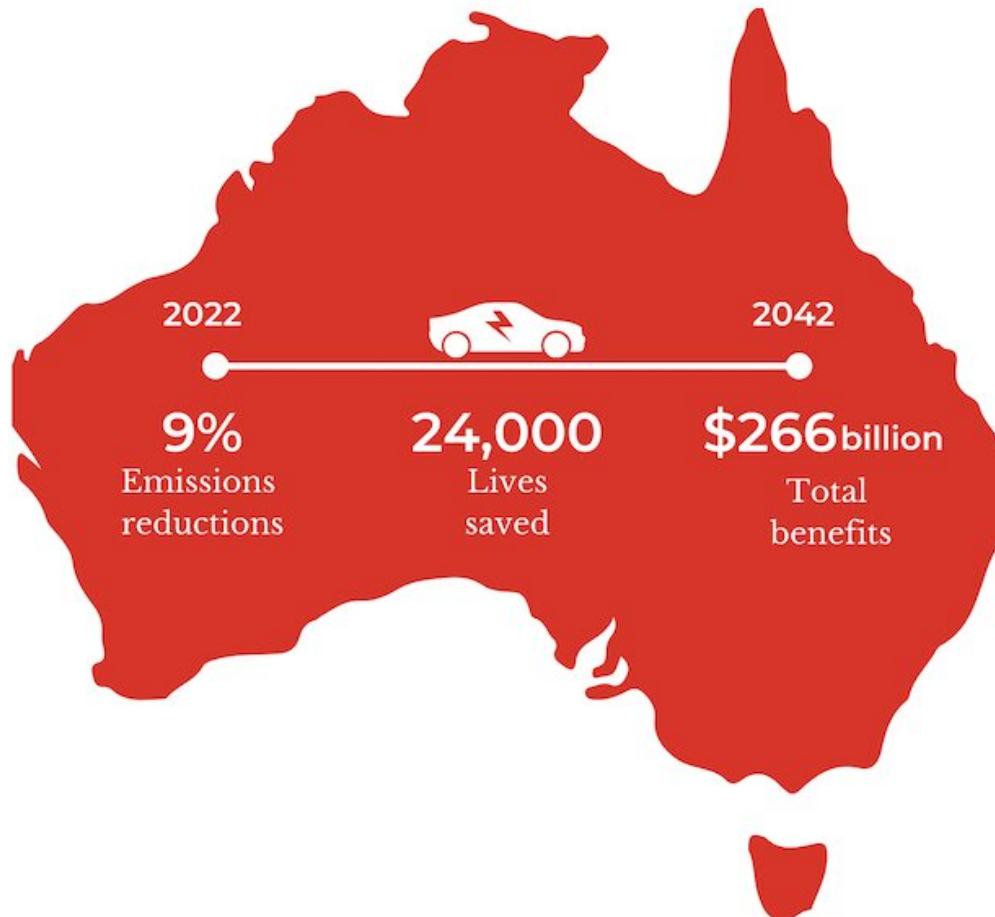
Vehicle emissions increase respiratory infections as well, [particularly in](#)

[young children](#). Transport pollution [contributes to many diseases](#), including lung cancer, heart disease, pneumonia, asthma and diabetes. It has also been [linked to Alzheimer's disease](#).

A [2019 study](#) by the Electric Vehicle Council and Asthma Australia found [vehicle emissions](#) had 21,000 serious health impacts each year in New South Wales alone.

A [Grattan Institute study](#) last month showed exhaust-pipe pollutants from trucks kill more than 400 Australians every year.

Accelerated adoption trajectory



The benefits greatly outweigh the costs

Our new Swinburne University of Technology [research](#) evaluated the benefits of a transition to electric vehicles by considering public health,

household and emissions reductions savings. We compared the benefits with costs, including charging infrastructure outlay, higher purchase prices for electric vehicles and green energy package costs—for household solar panels, battery storage and charging points.

Each electric vehicle was considered to have been bought along with a green energy package. The package minimizes emissions and demands on electricity grid capacity, while increasing the benefits for households.

The study explored three scenarios:

1. **slow scenario**—business-as-usual, with electric vehicle sales increasing slowly from the current rate (a 5% increase in the first year, followed by a 10% yearly increase)
2. **accelerated market-based scenario**—aligns with the highest rates of adoption around the world like those in Norway (where [64% of new vehicles sold](#) in 2021 were battery-powered), increasing by 5% every year
3. **aggressive regulatory scenario**—assumes all new vehicle sales would be electric in the base year as a result of government regulation.

The main differences between the scenarios are the rate of electric vehicle uptake (once consumers decide to retire their current vehicles) and the degree of government intervention.

The research found the business-as-usual scenario undermines national efforts to reduce the loss of life and cut emissions. It also found the aggressive strategy would have to overcome massive barriers given Australia trails many other countries in adopting electric vehicles.

The accelerated adoption strategy, however, is well aligned with uptake in other nations. Their example shows it can be achieved using

progressive policies and incentives.

If implemented, the accelerated scenario could reduce the loss of life by around 24,000 by 2042. The reduction in emissions over this time would be 444 million tons of carbon dioxide equivalent, or 91% of [Australia's emissions from all sources in 2021](#). The cost would be around \$118 billion, less than half of the total benefits of \$266 billion.

In all scenarios, the estimated public benefits dwarf government expenditure

Categorised by three explored scenarios, based on the rate of electric vehicle uptake.

Slow adoption trajectory	Accelerated adoption trajectory	Aggressive adoption trajectory
3,000 lives saved	24,000 lives saved	28,000 lives saved
1% emissions reduction	9% emissions reduction*	12% emissions reduction
\$34 billion total benefits	\$266 billion total benefits	\$345 billion total benefits
\$15 billion total costs	\$118 billion total costs	\$152 billion total costs
\$19 billion net benefits	\$148 billion net benefits	\$193 billion net benefits
2025 breakeven year	2027 breakeven year	2026 breakeven year

*Percentage of the 2030 carbon budget

Putting us on track for emissions targets

The new [Climate Change Act](#) mandates targets of a [43% cut in emissions by 2030](#) and net-zero emissions by 2050. Our research shows effective electric vehicle policies can help achieve these targets.

Such policies can be adopted from nations that have made rapid progress on electrifying their transport sectors. These policies include strict and mandatory fuel efficiency standards, investment in electric vehicle charging stations and standardization of charging infrastructure. They also include financial incentives to buy and run electric vehicles, and cheap loans to help households and freight operators with purchase costs.

Importantly, these nations recognize that electric vehicles are not a remedy for all transport challenges. They should be complemented by strategies to manage travel demand, reduce the numbers of cars and journeys by car, and improve access to public transport.

We shouldn't accept so many avoidable deaths

Without a rapid shift to [electric vehicles](#), Australia risks losing at least 1,200 lives a year—deaths that we could avoid—over the next 20 years.

The loss of life would be equivalent to 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 accept the loss of life to preventable air pollution.

Australia has a feasible rapid pathway to decarbonize its transport sector. Our findings show the benefits to society and the planet are hard to dismiss.

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