

Fuel efficiency standards 2023

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In July 2010, Prime Minister Julia Gillard committed to mandatory CO₂ emissions standards for new light vehicles, to commence in 2015¹.

In September 2011, the Minister for Infrastructure and Transport, Anthony Albanese, released a discussion paper examining the key issues around the implementation of the mandatory CO₂ emissions standards for new light vehicles.

In 2014, the Climate Change Authority released its *Light Vehicle Emissions Standards for Australia Research Report*², which recommended a single standard for passenger and light commercial vehicles, with fleet average emissions based on vehicle footprint, and no multipliers or off-cycle credits. This study predicted that by 2025 the new fleet emissions would be 105 g CO₂/km, giving motorists fuel savings of \$830 per year, reducing CO₂ emissions by 59 Mt, and giving Australia a net benefit of \$580 for each tonne of CO₂-e prevented.

The arguments and conclusions of the 2014 report are still valid. However, I will submit that:

- we have already had our cautious start, so we should not have another
- attribute-based emissions limit curves are not necessary, and could result in a shift to vehicles that are larger and heavier than necessary.

Emissions level limit and approach

The current discussion paper considers three emissions reductions trajectories—a cautious start, a straight line, and a fast start. A cautious start has more area under the vehicle emissions curve than fast start or straight line approaches, and so greater vehicle emissions between now and 2035. The vehicles introduced in the early years of a cautious start trajectory will have relatively high emissions and be on the road for another 10 years. If we want to achieve a certain level of emissions reduction then a cautious start will require a faster reduction, a lower finish, or both. These could be difficult to achieve.

Australia is so far behind at the moment that we can afford to have a fast start—manufacturers are already building low emission vehicles for Chile, China, EU, India, Japan and the US.

¹Emily Gibson, 2022, *Developments in Australian fuel quality and vehicle emissions standards: a chronology*, Parliament of Australia, Department of Parliamentary Services

²Australian Government, Climate Change Authority, 2014, *Light Vehicle Emissions Standards for Australia Research Report*

Attribute-based emissions limit curves

Both mass and size contribute to the energy required to propel a vehicle—mass contributes to the rolling resistance, and size (along with shape) contributes to aerodynamic drag.

We should avoid an attribute system that incentivises vehicles that are heavier or larger than necessary. Passenger space, cargo space and towing capacity are more directly relevant to buyers than mass or footprint.

The Australian Government’s Green Vehicle Guide uses ‘vehicle class’ as a way for buyers to specify the type of vehicle they are interested in, though it is not clear how the vehicle classes are defined. The following table shows the lowest CO₂-e combined cycle emissions, in grams per kilometre, for each vehicle class and fuel type of new vehicles available in Australia. Data is from the Green Vehicle Guide, May 2023. Pure electric vehicles have been omitted because their combined cycle emissions are not listed in the Green Vehicle Guide, and actual emissions depend on the source of the electricity used to recharge.

Class	PHEV	Hybrid	Diesel	Petrol
Small	13	76	97	106
Medium	13	79	107	109
Large	23	61	114	97
People mover	35	101	129	128
Van			123	131
Offroad	37	128	139	158
Ute or light truck			166	225

The table shows that, for the same fuel type:

- small, medium and large cars have about the same emissions
- people movers and vans have higher emissions than cars
- offroad vehicles have even higher emissions
- utes and light trucks have the highest emissions.

There are several ways to reduce fleet emissions:

- encourage manufacturers to build vehicles with emissions that are closer to best-in-class for a given vehicle class and fuel type
- encourage manufacturers to shift to hybrid and plug-in powertrains
- encourage people to buy vehicles with best-in-class emissions
- encourage people to change the class of vehicle they buy to a more efficient class.

The consultation paper talks about ‘types of vehicles Australians love, including utes, SUVs and 4-wheel drives’. The two most popular new vehicles in Australia, according to the Green Vehicle Guide, are the Ford Ranger (195 g/km) and the Toyota HiLux (188 g/km). These diesel vehicles have emissions 17% and 13% higher than the best-in-class diesel ute, 45–60% higher than the best-in-class diesel people mover or van, and 5 times higher than a PHEV Range Rover. How much of the love for utes is because Australian tax laws allowed generous instant asset write-offs and Fringe Benefit Tax exemptions for these types of vehicles?

Any allowance for mass, footprint or vehicle class should not be so generous that it encourages manufacturers to promote heavier, larger vehicles as reasonable passenger vehicles for urban and suburban use. A 2022 US study³ found that:

Though pickup trucks were the striking vehicle in just 5.6% of pedestrian and pedalcyclist crashes, they were involved in 12.6% of fatalities. SUVs were similarly overrepresented in fatalities relative to the proportion of their involvement in all crashes. SUVs struck 14.7% of the pedestrians and pedalcyclists investigated here, but were involved in 25.4% of the fatalities.

A recent newspaper article⁴ references work done by Stuart Newstead, director of Monash University's Accident Research Centre:

Newstead worked on research in 2020 that found the road death toll was inflated by 5% purely from people choosing to buy four-wheel drive utes and large SUVs despite not needing their power or size for the routes they drive. He says the 5% figure is now considerably higher due to increased sales patterns in the last few years.

Dual vehicle classes/targets

Australia should have one target curve for reducing light vehicle emissions, and this should be reflected in a single target for manufacturers, without allowances for mass, footprint or vehicle class. This gives manufacturers more flexibility in how the target is met:

- they can improve emissions within each powertrain type
- they can increase the use of hybrid, plug-in hybrid and electric powertrains
- they can promote existing models within each vehicle class that have lower emissions
- they can promote vehicle classes with lower emissions
- they can pool with, or buy credits from, other manufacturers.

Having a single target, without allowances for vehicle type, mass or footprint, will discourage a fleet shift from cars to utes and light trucks, or to vehicles with greater mass or greater footprint. Such shifts in the composition of the fleet would defeat the intent of the targets. The initial target can be based on the current composition of the fleet. A linear or fast-start reduction can undo some of the recent shift to twin-cab utes.

³M. Edwards & D. Leonard, 2022, 'Effects of large vehicles on pedestrian and pedalcyclist injury severity', *Journal of Safety Research*, 82:275–282

⁴Elias Visontay, 2023, 'Australia's rising road toll: how the pandemic and a love of big cars are putting lives at risk' *The Guardian*, 21 May 2023