

Fuel Efficiency and New Car Label Standards

From 1 October 2008 we will start to see new labels on cars relating to their fuel consumption. Under ADR81/02, these labels will also show grams of CO₂ emitted per kilometre (in urban and extra-urban cycles).

Need a Conversion Table?

Fuel consumption can be measured and reported in so many different ways. Just when we got used to miles per gallon (mpg) and litres per 100 kilometres, someone gave us grams (gm) of CO₂ per kilometre. Is there any simple way of understanding this?

Firstly, LPG, petrol, and diesel have different energy densities, so litres/100 km does not consistently translate to the impact on the environment through CO₂ emissions. That is why this new measurement has been developed. Australia has set a fuel efficiency target for 2010 of 6.8 litres/100 km (41.5 mpg). This is the equivalent of 170 gm/km for a petrol engine. Likewise the USA has set a target for 2020 of 35 mpg (measured in US gallons). This converts to 6.72 litres per 100 km or about 168 gm per km.

One gallon US = 3.79 litres

One imperial gallon = 4.55 litres

30 miles per imperial gallon = 9.4 litres per 100 km

30 miles per US gallon = 7.8 litres per 100 km

CO₂ emissions for petrol are 2.5 kg/litre of fuel

CO₂ emissions for diesel are 2.7 kg/litre of fuel

CO₂ emissions for LPG are 1.6 kg/litre of fuel

Fuel efficiency standards around the world

Country	Date	Objective	Comments
East Asian (Japan, Korea)	2009	140 gm/km	Most cars made are smaller ones and these meet the standards.
European	2008 -missed it 2012	140 gm/km 120-130 gm/km	Most manufacturers are meeting 160 g/km today. Proposed financial penalties for those models exceeding target
Australian (voluntary)	2010	6.8 litres / 100 km (170 g/km) Now changed to 222 gm/km	Original target was not likely to be met, except with imported models. With the recent changes, the new target is likely to be met.
American	2020	35 mpg (US) = 168 gm / km	40% improvement on today's cars. Sports Utility Vehicles will be included as cars and not trucks, as they are presently.

In Australia, for locally made and imported medium sized cars, the fuel efficiency has improved over the last 20 years by about 20% to now be between 180 and 230 Gms per km.

Australian studies have found that a one-litre increase in engine size results in a 9% increase in fuel consumption. Similarly, a 200kg increase in mass is associated with a 6% increase in fuel consumption. However care must be taken when interpreting these estimates, as engine size and vehicle mass are highly inter-dependent.

The solution: your next car should be less powerful and more energy efficient.

The USA's experience has been of increased power and weight, but static fuel consumption figures over the last 20 years. How the average vehicle sold in the U.S. has changed:

Year	Fuel economy (mpg)	Weight (lbs.)	Horsepower	0 to 60 mph (seconds)	% cars/trucks
2006	21.0	4,142	219	9.7	50/50
1987	22.1	3,220	118	13.1	72/28

Source: EPA: Light-Duty Automotive Technology and Fuel Economy Trends, 1975-2006 (July 2006)

Specifically Australian Issues

For years the federal government has been handing out 'perverse subsidies' to the car industry. That is, we have been subsidising them to do the wrong things.

Firstly we have given a reduced import duty on 4WDs compared with passenger cars (after all, they are commercial vehicles and only farmers or trades people would want one, right?). This is scheduled to disappear in 2010.

Secondly, we give tax breaks to people with a 'company car' according to how far they drive it each year. Drive further, get a bigger tax deduction. In the UK they had a similar system and found when they gave a flat rate based on fuel efficiency, people bought cars with better fuel consumption and actually chose to drive less. We should do the same.

A Useful Reference

Commissioner for Environmental Sustainability, Public Transport's Role in Reducing Greenhouse Emissions- Position Paper (July 2008).

[http://www.ces.vic.gov.au/CA256F310024B628/0/3C375AF544CFB3D4CA25748D0022100E/\\$File/public+transport+-+role+in+reducing+greenhouse+emissions.pdf](http://www.ces.vic.gov.au/CA256F310024B628/0/3C375AF544CFB3D4CA25748D0022100E/$File/public+transport+-+role+in+reducing+greenhouse+emissions.pdf)