



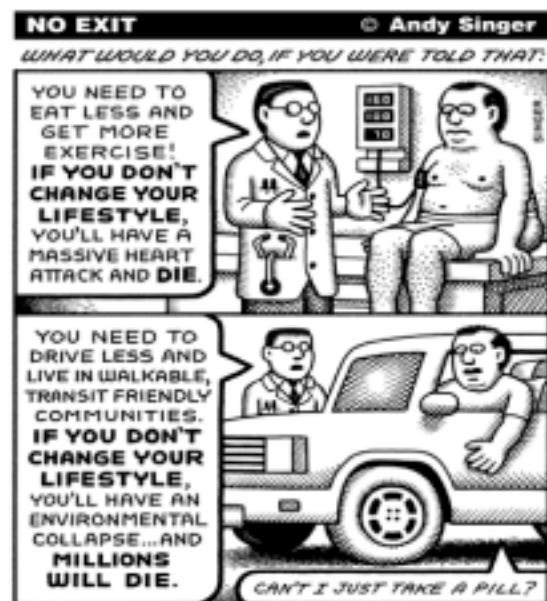
SUSTAINABLE LIVING TASMANIA

Your Car and Your Carbon Emissions

According to a report by the World Bank in 2007 Australia is the ninth biggest contributor to increased global carbon emissions with the nation's annual emissions of carbon dioxide (CO²), the primary greenhouse gas, having increased by 107 million tonnes, or 38 per cent between 1994 and 2004. On a population basis Australia had the sixth highest emissions of CO² — 19.36 tonnes per head in 2004, roughly three times that of Sweden and Switzerland, more than five times that of China, 19 times that of India and 72 times that of Bangladesh. The report found that Australia fared so badly in comparison to other developed nations for a number of reasons, mainly its reliance on the burning of coal for electricity; a high number of energy-intensive industries and it has a large car fleet with poor fuel efficiency, with motor vehicle use contributing approximately 14% to the total national annual emission level (2005 figures).

According to a survey by The Australia Institute, the average Australian car's annual CO² emissions roughly 4.3 tonnes³ with approximately 310 grams of CO² emitted per kilometre. This all adds up to a total of around 43 million tonnes of CO² or equivalent greenhouse gases emitted annually by passenger cars alone (2002 figures). For these reasons an important part of a successful national climate change strategy is for an individual approach to reducing unnecessary vehicle CO² emissions and improving fuel economy. This guide outlines steps to achieve these goals.

Your vehicle's CO² emissions



As the CO² emission levels for fuel is a direct factor of the carbon content of that fuel, for every litre of petrol used your car emits 2.32 kg CO². Since diesel fuel has a higher carbon content than petrol, for diesel engines the emission level is 2.66 kg CO² per litre.

Your vehicle's approximate running costs

(As of March 2007 when the average price per litre of petrol was at \$1.23)

Vehicle Category	cents/km	Average \$ per week
Light – up to 1600cc	48.90	141.09
Small: 1601-2000cc	59.80	172.51
Medium: 2001-3000cc	75.30	219.88
Large: Over 3000cc	82.90	239.11
Compact 4WD	76.90	221.88
Medium 4WD	91.30	263.31
Large 4WD	126.60	365.15

Alternative comparisons (per passenger)

Taxi (Tasmanian rates)	160.00
Metro Bus	24.00 (av)

Working out your vehicle's CO² emissions

The Federal Government's Green Vehicle Guide (<http://www.greenvehicleguide.gov.au>) is an excellent resource to determine a vehicle's fuel economy, new or second-hand. For example the New Holden Commodore comes in with the worst rating with an average petrol bill of \$2,430 and emitting 3.6 tonnes of CO². Next was the Ford Falcon at \$2,430 also emitting 3.6 tonnes of CO². The Mazda 3 came in third at \$1,845 and the Toyota Corolla at \$1,672. The most economical is the Toyota Yaris at \$1,350 a year and releasing 1.6 tonnes of CO².

To understand how the ratings on new cars are derived go to:

<http://www.greenvehicleguide.gov.au/gvgpublicui/Staticcontent/ratings.aspx>

The Green Vehicle Guide helps you by rating new Australian vehicles based on greenhouse and air pollution emissions. This rating is calculated using data provided by manufacturers from testing the vehicle against Australian standards. For example:

Make/model	Average litre per 100km		Greenhouse Rating*
	Combined city/highway		
Toyota Prius hybrid	4.4		8.5
Honda Civic	7.2		7.0
Hyunda Sonata	8		6.5
Lexus RX400H	8.1		6.5
Mercedes-Benz CLK	8.4		6.5
Hummer H3	13.9		3.0

For the fuel usage for a large number of secondhand car economy ratings also see the Green Vehicle Guide. For example the fuel economy for a few 2003 model cars are as follows:

Make/model (2003)	Average litre per 100km	
	City	Highway
Holden Calais V6/V8	11 to 13.5	6.6 to 8.5
Holden Commodore V6/V8	10 to 13.5	6.8 to 8.5
Holden Barina	7.6 to 7.8	5.2 to 5.4
Make/model (2003)	Average litre per 100km	
	City	Highway
Ford Falcon	10.5 to 15	7.2 to 10.5

Toyota Corolla	7.8 to 8.0	-	5.4 to 5.8
Toyota Tarago	10	-	7
Toyota Prius	4.6	-	4.2
Suzuki Swift	6.2 to 7.8	-	4.4 to 5.6
Subaru Liberty	9.5 to 11	-	8.0 to 8.5

Motorcycle economy depending on model*

Make	Average litre per 100km		
Honda CB 1300	5.7	to	6.9
Harley-Davidson	4.4	to	6.9
Vespa	3.8		
Baja Boxer	1.5	to	2.0

*Reference: Total Motorcycle Fuel Economy Guide:

<http://www.totalmotorcycle.com/MotorcycleFuelEconomyGuide.htm>

To calculate your vehicle's total annual CO² emissions

First, estimate your estimated annual kms (an average is 15,000 kms/yr.) and then divided by 100. Next, find your vehicle's estimated fuel consumption from the Green Vehicle Guide and multiply by your vehicle's "litre per 100km" rating to find the total of litres used per year. (You could also keep a vehicle log-book to work out your exact fuel consumption). Next multiply this by 2.32 (kg of CO² per litre) to find the total amount of CO² emitted. For example, the 2008 Toyota Prius hybrid, with an approximate fuel usage of 4.4 litres per 100kms, and with 15,000 kms travelled per gives a total of 660 litres of petrol used annually. The total CO² emissions for the year would then be 1,531 kg (1.53 tonnes).

If you yearn for a new Commodore V8, however, for every 15,000kms you drive you would be contributing 3.6 tonnes of CO² towards global warming. Still worse is the new Hummer H3 which pumps out almost 5 tonnes of CO² for the same number of kilometres drive.

Points on reducing your vehicle's emissions

* When purchasing a new or used car check for either its Greenhouse Rating or fuel economy from the Federal Government's Green Vehicle Guide.

* Always select the most economical and least CO² polluting vehicle for your purposes. This may mean switching to a smaller vehicle with a smaller capacity engine.

* Avoid 6 and 8 cylinder engines that can use up to three times as much petrol as small fuel-efficient engines.

* Organise a car pool with workmates if possible. An excellent resource in Tasmania is "Cool Pool Tas" (<http://www.coolpooltas.com.au>) for locating an existing car pool or to help organise a new one in your area.

* Maintain your vehicle for optimum performance, this increases fuel efficiency and reduces CO² emissions. Steps to achieve optimum fuel economy include:

* Stay slightly under the speed limit. For example driving at 90kph in a 110 kph zone give up to 25% savings in fuel usage.

* Avoid idling: Ten seconds of idling uses more fuel than restarting your engine and idling your vehicle for 10 minutes a day wastes more than 100 litres of petrol in a year. (<http://www.cbsm.com>)

- * Drive smoothly and avoid accelerating harder than required.
- * Use cruise control if fitted.
- * Replace engine oil, oil filter and air filter at the recommended intervals.
- * Maintain recommended tyre pressure-under inflated tyres reduce fuel efficiency.
- * Avoid unnecessary use of air conditioners.
- * In cold weather let a cold engine idle for several minutes before driving – cold engines are not as fuel efficient.
- * Remove accessories, such as roof top racks that increase wind resistance.
- * Driving with the windows down also increases wind resistance.
- * Remove excess weight stored in the vehicle.
- * Whenever possible use public transport
- * When choosing a place to live think of reducing travelling to reduce your carbon footprint. This would include distance to shopping areas and choosing schools.
- * For motorbikes check the “Total Motorcycle Fuel Economy Guide”
<http://www.totalmotorcycle.com/MotorcycleFuelEconomyGuide.htm>

Are there fuel saving devices to improve fuel efficiency?

There are a large number of so-called fuel saving devices, such as additives, catalysts and bolt on gadgets that claim to be able to improve fuel efficiency 15%-30% and therefore reduce your vehicle's running costs. The automotive industry has issued concerns over these devices and the Office of Fair Trading has launched an investigation into the claims of these devices. At present there is very little factual evidence that these devices make any difference at all in fuel consumption other than increasing your running costs by the amount that the devices cost.

Further References:

Fuel Watch: http://www.fuelwatch.wa.gov.au/info/dsp_fuel_economy_tips.cfm

RACQ Fuel Economy fact sheet:

http://www.racq.com.au/community/education_resources/technical_factsheets/fuel_econom

* **Cartoons used with permission of Andrew B. Singer**

Compiled by Don Maisch, August 2008

