

## Environmental Information on Vehicles Prepared For Green Light Couriers

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### General Statistics

- There is 34.2 megajoules of energy contained in every litre of petrol. Here is how we use it in our cars:
  - We lose 62% due to the inefficiency of the engine
  - A further 8% is lost in the drive train and running the accessories
  - 17% is wasted at idle
- That is 87% of the fuel used up before we even move the car!
- Of the 13% (4.5 megajoules) of energy left, let us assume that the car weighs 1600kg and that we weigh 80kg, then it will take over 95% of the available energy to move the car and just under 5% to move us!
- So out of our original 34.2 megajoules we use just 0.65% or 0.22 megajoules to move us!

Source = <http://www.greenfleet.com.au/transport/sustainable.asp>
- In Australia in 2002, cars contributed 43 million tonnes of carbon dioxide or equivalent greenhouse gases, which is 8% of total national emissions. Trucks and light commercial vehicles contributed 24 million tonnes. Together these represent 13% of Australia's total emissions and since 1990 this figure has increased by 28%.
- A vehicle using LPG, for example, will have higher fuel consumption than the same vehicle using petrol. This is due to the difference in energy content between LPG and petrol. However, when a litre of LPG is used by a vehicle, the level of CO<sub>2</sub> emissions from the exhaust is significantly lower than that for a litre of petrol.

Source - <http://www.greenvehicleguide.gov.au/gvgpublicui/StaticContent/emissions.aspx#2>
- For every litre of petrol used, 2.5 kilograms of carbon dioxide is released from the exhaust. Carbon dioxide, a by product of burning petroleum, is a greenhouse gas. Greenhouse gases build up in the Earth's lower atmosphere and prevent heat from rising from the surface into space. Scientific research predicts that increasing concentrations of greenhouse gases will increase the average global temperature, leading to changes in the world's climate and weather patterns.

<http://www.greenhouse.gov.au/fuellabel/environment.html#estimate>

## LPG (Autogas) Information / Stats:

### What is LPG / Autogas?

Liquefied Petroleum Gas is the generic name for mixtures of hydrocarbons (mainly propane and butane). When these mixtures are lightly compressed (approx. 800 kPa or 120 psi), they change from a gaseous state to a liquid. LPG is colourless, odourless and heavier than air. A chemical is added to give it a smell like rotten cabbage, so that even a very small leak can be easily detected. LPG burns readily in air and has energy content similar to petrol, which makes it an excellent fuel for heating, cooking and for automotive use.

Autogas is widely recognised for its inherent environmental benefits. Autogas offers an immediate reduction of up to 15% in carbon dioxide emissions compared with the emissions of a petrol-powered vehicle.

Source - <http://www.unigas.com.au/pages/benefits.html#>

Refinery LPG, as opposed to naturally sourced LPG, is a by-product of refining diesel and petrol.

Although diesel tends to have less CO<sub>2</sub> tail-pipe emissions, it tends to produce very high levels of oxides of nitrogen (NO<sub>x</sub>) and fine particulate matter (the two most harmful vehicle pollutants), pulling it down on the environmental scale when compared to LPG.

- LPG Autogas offers a saving of around 70 to 80 cents per litre compared to petrol and a good conversion payback depending on Kms travelled. Source - <http://www.lpgaaustralia.com.au/>
- Autogas typically has around 20 per cent less ozone forming potential (a measure of the tendency to generate photochemical smog), between 10 and 15 per cent lower greenhouse gas emissions and only one fifth air toxics emissions.
- LPG Autogas vehicles operate even more relatively cleanly when the engine is cold. Given that most urban-use vehicles are often used for very short journeys this means a significant reduction in “real world” emissions.
- LPG Autogas is also much cleaner than diesel. The dirty black smoke that we see coming from diesel vehicles is particulates – a known cause of sickness and deaths. By replacing a diesel engine with an LPG Autogas-powered equivalent, over 90 percent of this particulate matter would be eliminated.
- LPG Autogas is also much cleaner during the refuelling process. When refuelling with petrol or diesel, chemical vapours escape into the atmosphere and can also be breathed in during the entire refuelling process. Autogas refuelling is a fully sealed process.

- The advantages of Autogas over petrol include:
  - Fewer oil and filter changes
  - No sludge formation in engines
  - Longer exhaust life
  - Cleaner spark plugs
  - Longer engine life
  - Cylinder walls are never washed dry
  - No lubricating oil dilution occurs
  - No fuel carbon deposits are formed, resulting in less engine wear

Source - <http://www.lpgautogas.com.au/index.cfm?Action=MyFleet>

<b>Fuel Type</b>	<b>CO<sub>2</sub> emissions per litre of fuel consumed</b>
Petrol	2.5kg
Liquefied Petroleum Gas (LPG)	1.6kg
Diesel	2.7kg

Source - <http://www.greenhouse.gov.au/fuellabel/environment.html#estimate>