Transport Fuels:
Liquefied Petroleum Gas (LPG)

Overview

Liquefied petroleum gas (LPG) is a well-established gaseous fuel in South Australia.

LPG is widely available, servicing a fleet of dedicated LPG-fuelled vehicles and vehicles converted to use LPG.

LPG is cheaper and cleaner burning than petrol. Using LPG in place of petrol can cut greenhouse gas emissions by over 10%.

Australia is one of the top 5 nations for LPG uptake and use.

What is LPG?

LPG – sometimes referred to as Autogas – comprises a mix of the light hydrocarbons propane (C_3H_8) and, in most cases, butane (C_4H_{10}). Propane and butane are gases at standard temperature and pressure, but are easily converted to liquid at moderate pressure (800 kPa) or temperature (-42°C).

LPG is a by-product of both:

- Natural gas production, where propane and butane are present in small amounts; and
- Oil refining, where propane and butane are distilled before the petrol and diesel fractions are obtained.

LPG is most commonly used as a fuel in engines with a spark ignition and, therefore, is a replacement for petrol.

To use LPG, a vehicle requires a dedicated LPG fuel system. Vehicles may be designed for LPG only, or offer dual fuel capability with separate petrol and LPG fuel systems.

One litre of LPG has about three-quarters of the energy of a litre of petrol. It offers considerable operational savings, however, as the volumetric retail price of LPG is normally around half that of petrol.

Vehicles that run solely on LPG can take advantage of the higher octane rating of the fuel (106RON to 112RON).

LPG can also be used as a supplementary fuel, blended with diesel, in compression ignition engines – however natural gas is more commonly used in this application.

Dedicated LPG Vehicles and Conversions

LPG is only suitable for vehicles either built or modified to use it.

Some light vehicles, such as Australian-built Holden Commodores and Ford Falcons are available as dedicated LPG variants,

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employing high compression ratios and engine management systems optimised for the fuel. The pressurised LPG tank is incorporated without compromising luggage space. Performance is comparable to the petrol variant.

As an alternative to buying a dedicated LPG vehicle, you can arrange for a professional conversion of an existing petrol vehicle to run on LPG.

Conversion involves the installation of a pressurised LPG tank, a regulator to allow gasification of the fuel, new fuel lines, and air/fuel mixer or LPG injection system and a fuel lock to shut off the LPG supply when the engine stops.

The LPG tank is often installed in the boot, which may be too restrictive for smaller vehicles.

The Australian Government's LPG Vehicle Scheme offers grants for the both conversions and new dedicated LPG vehicles, with some conditions.

LPG fuelled vehicles must display a standardised sticker on the number plate.

Why consider LPG?

- LPG is cheaper than petrol on a per-kilometre basis. It is well proven as a transport fuel in South Australia.
- Compared to petrol, greenhouse gas emissions are around 14% lower and air toxic emissions, such as particulate matter, nitrous oxides and complex hydrocarbons, are reduced.
- It is domestically sourced, reducing Australia's dependence on oil imports.
- Using a dual-fuelled vehicle gives you more flexibility in fuel choice.

What issues are there?

- LPG availability, while broad, is not universal. This is only likely to be an issue in remote areas.
- Conversions come at a cost (rebates may apply) and may reduce available storage space in your vehicle.

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See Also:

- *Transport Fuels*
- *Transport Fuels: Conventional Fuels*
- *Transport Fuels: Natural Gas (CNG and LNG)*
- *Transport Fuels: Ethanol (E10 and E85)*
- *Transport Fuels: Biodiesel (B5, B20 and B100)*
- *Transport Fuels: Electricity*
- *Transport Fuels: Emerging and Future Fuels*

External Links:

- *Australian Government's LPG Vehicle Scheme*

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