

LIFE CYCLE EMISSIONS FROM CARS USING AVAILABLE FUELS - THE AUSTRALIAN SITUATION**T. Beer¹, T. Grant², H. Watson³**¹*CSIRO Environmental Risk Network, Aspendale, Australia*²*RMIT, Melbourne, Australia*³*University of Melbourne, Parkville, Australia*

Of the Australian passenger fleet of 10.1 million vehicles, 226,500 are powered by Liquefied Petroleum Gas (LPG), which is readily available throughout the country. Australia also has an equivalent number (272,000) of diesel vehicles under 3.5 tonnes, primarily four-wheel drive vehicles. The full fuel cycle of atmospheric emissions (known as exbody emissions) incorporates emissions involved in manufacturing and transporting the fuel, as well as the emissions involved in combusting the fuel. Exbody emissions, on a per kilometre basis, of dedicated OEM LPG cars are less than those of equivalent cars using unleaded petrol for greenhouse gases, hydrocarbons, oxides of nitrogen, and particulate matter. Exbody carbon monoxide emissions, on the basis of the available data, appear to depend on the type of LPG used. Propane emits less exbody carbon monoxide than the equivalent petrol vehicle, but autogas may emit more. Diesel vehicles emit less greenhouse gases but more particulate matter. As emission control specifications decree lower emission limits in the future, vehicle manufacturers and catalyst manufacturers will find it harder to comply. This means that it will be harder to optimise a vehicle to produce low emissions for two separate fuels. We conclude, however, that dedicated LPG vehicles will be able to maintain both lower tailpipe emissions, and lower exbody emissions, than petrol vehicles.