

## FACT SHEET JULY 2004

# TRUCKS AND AIR QUALITY

A very large number of trucks in Australia are powered by diesel fuel. This trend is likely to continue into the future because it has a high energy content, is readily available, and it promotes engine reliability.

The significant gaseous and particle emissions produced by the combustion of diesel fuel include:

- Greenhouse gases: carbon dioxide (CO<sub>2</sub>);
- The common ambient air pollutants: carbon monoxide (CO), oxides of nitrogen (NO and NO<sub>2</sub> expressed as NO<sub>x</sub>), ozone (O<sub>3</sub>) and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>); and
- Hazardous air contaminants: mainly hydrocarbons (HC).

Human health and the environment can be affected by air pollution. Practically all motor vehicles, including trucks, contribute to urban air pollution and greenhouse gases – although the contribution made by trucks is very low in comparison to passenger motor vehicles.

The projected relative contributions to air pollution by vehicle category include:

### PERCENTAGE OF EMISSIONS FROM EACH VEHICLE CATEGORY - 2010

Vehicle Category	Year 2010			
	CO	NO <sub>x</sub>	HC	PM
Passenger	79.3	54.2	67.4	36.9
Light Commercial	14.2	13.8	14	17.2
Rigid Truck	2.5	15.7	12.2	31.7
Articulated Truck	0.8	10.7	1.7	8.3
Bus	0.4	5.2	1.9	4.6
Motorcycle	2.8	0.4	2.8	1.4
Total	100	100	100	100

Further, it is estimated that articulated trucks account for about 2.5% of greenhouse gases.

Australia, have taken steps to introduce **stricter diesel fuel quality standards** and regulations that make it illegal to sell (new) diesel powered vehicles if they do not reach **certain vehicle emission standards**.

Further, and what is believed to be a world's first, Australian governments have agreed to a *National Environment Protection (Diesel Vehicle Emissions) Measure* (the 'Diesel NEPM') that sets out standards for in-service emissions and their management.

Also, the Federal Government in July 2004 proposed a number of changes so that certain road users, including trucking operators, would only be eligible to receive fuel excise credits if it can be demonstrated that their vehicles are emission certified or are properly maintained.

### Stricter Diesel Fuel Quality Standards

Strengthened fuel quality standards and the availability of higher quality fuel are a key enabling condition for the production of motor vehicles with improved fuel efficiency and reduced exhaust emissions.

The *Fuel Quality Standards Act 2000* provides the framework for the establishment of national fuel standards for automotive use.

The first set of standards, for both diesel and petrol came into effect on 1 January 2003 at which time it was a requirement that diesel sold in Australia could not have a sulphur content in excess of 500 parts per million (ppm).

Ultra low sulphur diesel (ULSD) is currently being introduced into the Australian market. As of 1 January 2006, it will be illegal for diesel fuel that has a sulphur content greater than 50 ppm to be sold in Australia.

Further, diesel with sulphur levels of less than 10 ppm will be introduced in Australia from 2007 and will become mandatory from 1 January 2009.

It is important to reduce the sulphur content in diesel fuel because it contributes to fine PM emissions. Sulphur can also lead to corrosion and wear in engine systems.

### Diesel Vehicle Emission Standards

Vehicle emission standards are given legal effect as Australian Design Rules (ADRs) under the *Federal Motor Vehicle Standards Act 1989*.

Current Australian ADRs are based upon European standards (known as *Euro* standards) and equivalent (as far as possible) United States standards.

There are currently five ADRs that set limits on diesel vehicle emissions:

- ADR 30/01 which imposes limits on smoke emissions from diesel vehicles;
- ADR 79/00 implements Euro 2 standards for diesel passenger and light commercial vehicles from 2002 (new models) and 2003 (all models);
- ADR 79/01 implements Euro 4 standards for diesel light vehicles from 2006 (new models) or 2007 (all models);
- ADR 80/00 implements Euro 3 standards for heavy diesel vehicles from 2002 (new models) or 2003 (all models); and
- ADR 80/01 implements Euro 4 standards for heavy diesel vehicles from 2006 (new models) or 2007 (all models).

Specifically in relation to ADR emission standards for heavy diesel vehicles (greater than 3.5 tonnes gross vehicle mass), the following table demonstrates the reductions in CO, HC, NO<sub>x</sub> and PM that have and will occur in vehicles sold in Australia.

#### ADR EMISSION STANDARDS FOR HEAVY DIESEL VEHICLES

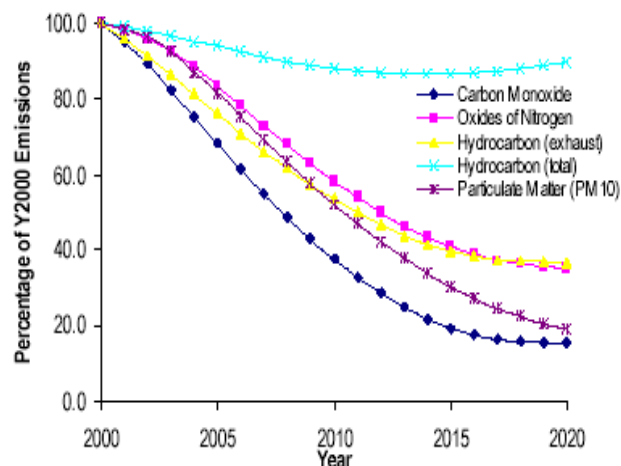
Standard	Application Date	CO (g/kWh)	HC (g/kWh)	NO <sub>x</sub> (g/kWh)	PM (g/kWh)
ADR 70/00 (Euro 1)	1995/96	4.5	1.1	8	0.36
ADR 80/00 (Euro 3)	2002/03	2.1	0.66	5	0.1
ADR 80/01 (Euro 4)	2007/08	1.5	0.46	3.5	0.03

### The Environmental Outcomes

Given the current ADR vehicle emission standards for trucks and other vehicles, in combination with the stricter fuel standards described above, the reduction in air pollutants will continue to be considerable.

A recent government report estimated the likely future emissions of CO, NO<sub>x</sub>, HC and PM between 2000 and 2020 (see following graph).

#### PROJECTED EMISSIONS AS A PERCENTAGE OF YEAR 2000 EMISSIONS



This report forecasts that PM and CO emissions in Australia will be reduced by approximately 80% and the other pollutants will fall by similar amounts. As a result, recent studies have found that there are very few incidences of air pollution in Australia's capital cities that are above government standards.

**The Australian Trucking Association is committed to environmental improvement and will continue to promote in conjunction with governments and manufacturers the adoption of new technologies where suitable, better maintenance practices, as well as the consumption of ULSD fuel across the industry.**

For more information in relation to 'Trucks and Air Quality' please contact the Secretariat on (02) 6253 6900 or contact us at – Australian Trucking Association, Minter Ellison Building, 25 National Circuit FORREST ACT 2603.