Proposed Adoption Euro 6 / VI Standards

The South Australian Government recommends that Option 6, mandatory standards equivalent to *Euro 6* for light vehicles and *Euro VI* for heavy vehicles, be implemented under the Motor Vehicles Standard Act 1989 as soon as is practicable.

We recognise Option 6 provides the greatest benefit to public health outcomes, and by doing so, produces the highest net benefit in monetary terms. It should also be noted that reductions in noxious emissions also provide additional benefits by reducing the stress on flora and fauna in the urban environment (i.e. parks and gardens, street trees, urban wildlife and pets) which are also affected by airborne pollution.

While Australia's air quality is better than many other countries, the evidence of numerous toxicological studies clearly indicates an increase in mortality and morbidity at the relatively low levels of air pollution found in Australian cities. The studies also show that people of all ages can be affected, not only the older population, as air quality has both short and long term health effects.

Recently, a cost-benefit analysis conducted to inform the National Plan for Clean Air, and in particular, air quality standards for particulate matter (PM_{10} and $PM_{2.5}$) determined that the reduction in future health costs (life expectancy extended) clearly outweighed the costs of reduction measures. Note this analysis did not include the potential further reductions in toxic emissions due to the move *Euro 5/V* to *Euro 6/VI* for light and heavy vehicles as a 'relevant measure'.

Clarification of the relationship or interplay between Vehicle Emissions Standards under the *Motor Vehicle Standards Act 1989* and Air Quality Standards under the National Plan for Clean Air would be appreciated. It is worth noting that ozone, nitrogen dioxide and sulphur dioxide standards are being reviewed at the moment under the National Clean Air Plan. A National Expert Working Group (EWG) has recently prepared a draft options paper with consideration of abatement measures as part of its benefit cost analyses, which of necessity must include vehicle emissions. This may further strengthen the case for new Toxic Emission Standards for motor vehicles.

Depending on the outcome of the review of the fuel standards in respect of sulfur content of petrol, there may be an increase in fuel costs to the consumer associated with the move to *Euro 6*. The adoption of *Euro 6* and *Euro VI* will also result in an increase in the price of some vehicles. Since, most vehicle manufacturers, particularly of light vehicles, sell into the European Union these increases will mostly be minimal. It also does not apply to those manufacturers that already sell *Euro 6* compliant light vehicles in Australia. The South Australian Government argues that these costs should be incurred to realise the much greater public health benefits to be realised from reduced emissions.

<u>Rejection of Other Options</u>

Given the clear toxicological evidence, responsible government requires ongoing measures to maintain and improve air quality. With toxic emissions from motor vehicles being a primary source of air pollution in urban environments, and likely to increase without further tightening of standards due to increasing residential densities and major developments along motor major transport corridors, we argue that Option 1 is not acceptable.

We also agree that Option 2 (Fleet policies) is unlikely to be sufficient even with full coordination across all Australia Governments, and that Option 3 (Voluntary Standards) are very unlikely to be successful as it will likely entail higher vehicles costs without tangible immediate benefit to purchasers, hence are unlikely to be driven by the free market.

We argue that maximum benefits for cleaner air require the adoption of both *Euro 6* and *Euro VI* equivalent Standard, with the adoption of each Standard showing strong net benefits by the BITRE analysis, hence Options 4 & 5 are not favoured.

Future development will increase people's exposure to vehicle emissions

In July 2015, the South Australian Government released its Integrated Transport and Land Use Plan. The Plan aims to align the future development of the State, and in particular the Greater Adelaide Region, to the existing and future transport systems. It proposes to maximise the utilisation of assets and to reduce public and private transport costs by concentrating new development and urban infill along major transport corridors. In Adelaide many of these are road based and will likely entail significant high rise development along major roads. The point is simply that in future more people will be in closer daily contact to increasing levels of vehicle emissions, hence there is a strong argument for enhanced standards lest a large part of the population will suffer increasing levels of toxic emissions from both passenger vehicles and heavy vehicle freight.

Emissions Testing and Compliance

It must be noted that there has been no consideration given to enforcement. Not only is there a need to deal adequately with in-service vehicles, particularly modified ones, recent events strongly suggest that there is a pressing need to monitor the performance of new vehicles. It should also be noted that there are major inconsistencies between the Australian jurisdictions in the application of vehicle emission requirements and testing.

It is unknown whether South Australia has the capability or facilities to conduct Real Driving Emission (RDE) Test described in the *Euro 6* standard. South Australia does not have the capability to undertake Worldwide Harmonized Light Vehicle Tests (WLTP). Since the demise of large scale light vehicle manufacturing in Australia there are very few, if any, facilities in the country capable of doing these tests.

As is the case for fuel efficiency testing under the proposed National Fleet Fuel Efficiency Standard, we also recognise the need for improved methods for the standard testing of toxic vehicle emissions. The New European Drive Cycle (NEDC) dynamometer test as used under *Euro 5* (and the initial adoption of *Euro 6*) has proven to be inadequate[1].

For example, the low loads and speeds that vehicles are subjected to under the NEDC test place little stress of modern turbo diesel engines, hence many passenger vehicles with cheap Lean NOx trap methods of NOx control have been able to achieve full *Euro 5* and *6* compliance via the NEDC test. However, when these same vehicles are subjected to normal driving conditions on road with typical vehicle loads and challenges such as hills they have been shown to emit many times the allowed limit. Further, at least one (and likely more) manufacturers have disabled the NOx emission control system when the engine management system sensed the vehicle was not on a dyno test, with the required periodic flushing of the Lean NOx Trap to ensure its effective operation turned off when the vehicle was on road.

Hence we recommend that the *Euro 6d* requirements be adopted at the earliest convenience to ensure that Australian market vehicles achieve *Euro 6* compliance by the more realistic and internationally standardised World harmonised Light vehicle Testing Protocol (WLTP) with further verification of performance by the Real Driving Experience (RDE) on-road test. With most emissions testing (either NEDC/WLTP) to be done by overseas manufacturers, we recommend that sufficient resources be provided for an adequate ongoing RDE program in Australia (eg as currently provided by the AAA) to periodically test common vehicles under Australian conditions. Without such testing there may not be any means to test for the installation of cheat devices on Australian market vehicles.

[1] Miller J and Franco V (2016). Impact of improved regulation of real-world NOx emissions from diesel passenger cars in the EU, 2015–2030. http://www.theicct.org/sites/default/files/publications/ICCT_real-world-NOX-RDE-2015-2030_dec2016.pdf.