

ATTACHMENT: RESPONSE TO INDIVIDUAL QUESTIONS

1. *What are the likely costs and benefits of adopting Euro 6 emissions standards for light vehicles and/or Euro VI emission standards for heavy vehicles?*

The South Australian Government supports the early adoption of Euro 6/VI equivalent noxious emission standards for the benefits of improved urban air quality and associated public health outcomes. However, this should be subject to a reasonable period of product planning and adjustment for auto manufacturers and possibly fuel suppliers.

2. *If Euro 6/VI standards were adopted, when would be an appropriate start date and why?*

As per Q1.

3. *To what extent do current Australian fuel quality standards limit the adoption/import of existing technologies and models that meet Euro 6 specifications?*

Australian fuel quality standards, particularly the current high sulfur content of Australian petrol (150ppm for ULP and 50ppm for PULP), may limit the introduction of some Euro 6 compliant vehicles and will likely prevent many current and future Euro 6 compliant vehicles from achieving their maximum performance in regard to the control of noxious emissions.

Care needs to be taken to ensure that a Euro 6 compliant vehicle can in fact achieve Euro 6 emission levels when running on high sulfur fuel (rather than 10ppm as Intended), both at the time of sale and in service if the high sulfur content degrades the performance of the catalytic converter over time.

Ideally, harmonisation of Australia emission standards with the EU, Japan, USA etc should be associated with harmonisation of fuel quality standards.

4. *Are there other ways governments could encourage the purchase and supply of vehicles that meet Euro 6/VI emissions standards?*

Government fleet purchases could potentially specify (or provide weighting) to vehicles that are Euro 6 or Euro VI compliant in advance of the formal adoption of these Standards.

5. *What measures could governments adopt to ensure vehicles continue to comply with noxious emission requirements beyond the point of supply to the market?*

The potential exists for in-service testing of vehicles, perhaps at times of secondhand sale, after a specified number of years, or in particular, after significant engine or

exhaust modification. However, the costs of accurately testing for noxious emissions are relatively high and the likelihood of non-compliance is considered to be low for unmodified vehicles that have been well maintained.

While it is likely that simple On-Board Diagnostic (OBD-II) assessment of emissions performance by the automotive services sector will ensure reasonable emissions compliance for the majority of the fleet, consideration should be given to modified vehicles.

The current absence of suitable test facilities in South Australia would limit the scope for independent testing, both on an individual vehicle basis and as a general research measure (eg if a random selection of the ageing vehicle fleet is period tested).

6. *Should the Australian Government conduct a review to consider whether noxious emissions standards for motorcycles should be adopted in Australia?*

Yes. It is our understanding that some unregulated motorcycle engines can emit many times the permitted limits applicable to cars. Although most motorcycles are imported from countries which apply standards (Japan, the EU and US), it is worth noting that:

- Most manufacturers do not include the necessary emission control technologies on models sold into countries (such as Australia) that do not have emissions standards.
- All other things being equal, a motorcycle without the appropriate emission controls will have an advantage in price, power and fuel economy. As far as we are aware, only BMW retain the emission controls for markets that do not have emissions standards. We understand that Harley Davidson, who are the leaders in the road motorcycle market (21% of the 2015 third quarter motorcycle sales) do not have emission controls on Australian market motorcycles.
- A considerable proportion of the smaller motorcycles, especially mopeds, are manufactured in China and Taiwan. Those manufactured in Korea for the Australian market are unlikely to have emission controls (this segment is highly price competitive).
- There is still a significant proportion of two strokes in the Australian motorcycle fleet, including all mopeds and a considerable proportion of road legal off-road motorcycles.
- While motorcycles may "account for less than one per cent of total vehicle kilometres travelled" they are likely to contribute much more than one per cent of vehicle emissions. A closer examination of sales figures and some enquiries of the distributors would give a better picture with comparatively little effort.
- As a high proportion of motorcycling is done for leisure and recreation and therefore takes place on country roads, further effort to discover what proportion of riding takes place outside urban air sheds would refine the above assessment.

7. *What are the costs and benefits of adopting a fleet average standard for fuel efficiency (CO₂)?*

Adoption of fleet average fuel efficiency standards for new vehicles is an important regulatory reform needed to both drive significant improvements in national energy productivity for economic advantage (as identified under the National Energy

Productivity Plan, Dec 2015) and to reduce emissions from the transport sector to achieve mandated Australian and South Australian Government targets for greenhouse gas emissions. It is anticipated that if introduced, such standards will be progressively tightened in line with similar schemes overseas (for example if modelled on the EU Framework).

In the absence of such standards Australia is at risk of (i) receiving imported vehicles with outdated technologies and inferior fuel efficiency (and therefore higher CO₂ emissions), and (ii) continuing to encourage Australian consumers to purchase vehicles that are larger and/or more powerful than what may be reasonably described as 'fit for purpose'.

Such standards are now commonplace in almost all other developed countries and many developing countries such as China and India. In the absence of such standards, Australia scores poorly in the energy efficiency of land transport sector. As evidence, the American Council for an Energy-Efficient Economy's 2014 International Scorecard ranked Australia last out of 16 major OECD countries for the energy efficiency of our transport sector.

Given Australia's (i) increasing transport task and (ii) its increasing reliance on imported petroleum products, the nation is likely to face real increases in the costs of imported fuel and far greater economic consequence from any disruption in international supply. Ensuring that the Australian vehicle fleet is as fuel efficient as possible, whilst meeting our in-service needs, is a wise risk reduction policy. Significant consumer benefit from reduced vehicle running costs is anticipated as a consequence of the proposed reforms, however this may be partially offset in some case by the higher costs of premium low sulfur fuels.

The reforms may entail some increases in the costs of vehicles, particularly if they have engine technologies that can only be sourced from production facilities in higher labour cost countries attuned to the EU, Japanese or North American markets, or if separate production runs are needed in countries such as Thailand to provide RHD vehicles made to new higher Australian specifications than would be required for other South-East Asian RHD markets. On the other hand, leadership by Australia may encourage improvements in vehicle technologies and related fuel quality improvements in the wider South-East Asian region and thereby achieve a greater global emissions benefit than can be achieved by Australia alone.

Consumers requiring larger vehicles may be disadvantaged through higher purchase costs. For example: (i) large families with the need for relatively high use large vehicles such as people movers, and (ii) country residents requiring 4WD vehicles for off-road use.

An average fleet fuel efficiency scheme would also offer the Australian Government the opportunity to incentivise electric vehicles and other ultra low emission vehicles without a direct cost to the Commonwealth (or to the States). For example, the EU scheme provides for 'Super Credits' for electric vehicles (and vehicles with < 50 g CO₂/km). Hence the sale of a single electric vehicle may be weighted as up to 3.5 vehicles when calculating the fleet average for a manufacturer. Such an inclusion in the proposed Standard is likely to be important in (i) encouraging auto manufacturers to bring their electric vehicle models (and other ultra low emission vehicles) to Australia; and (ii) promoting electric vehicle sales via a manufacturer cross subsidy

where the sale of a low profit, zero emission electric vehicle can be offset by high profits from a high emission sports or luxury car.

8. *If standards were adopted, what would be an appropriate fleet average target for 2020 and why? What would be an appropriate target for 2025 and why?*

The South Australian Government advocates for a strong fleet average fuel efficiency/CO₂ emissions standard consistent with the advice of the Climate Change Authority. That being 147g CO₂/km in 2020 and 107g CO₂/km in 2025.

The Climate Change Authority's *Light Vehicle Emission Standards for Australia Research Report 2014* noted that the Australian light vehicle fleet (new sales in 2013) had an emissions intensity of 193g CO₂/km, substantially above the EU (127g CO₂/km) and slightly below the USA (approx. 204 g/CO₂/km).

Under a business as usual approach, Australia's average light vehicle emissions are likely to fall to 169g CO₂/km in 2020 and 156g CO₂/km in 2025. This recognises that Australia will gain some benefit from importing vehicles from markets where standards are now in place.

However under the mandated USA Average Fleet Fuel efficiency Standard, emissions will fall to 144 in 2020 and 107g CO₂/km in 2025 (In the EU they will fall to 95g and 73g CO₂/km over the same time periods).

If Australia adopts a standard to achieve a reduction in average fleet emissions roughly equivalent to that mandated for the US light vehicle fleet (with its similar composition to the Australian fleet), then it is estimated this will entail an annual fuel saving for motorists of \$830 per annum, 59 Mt of cumulative CO₂ emissions to 2030 will be avoided and it will provide a net benefit of \$580 per tonne of CO₂ prevented.

Substantial further improvement in the efficiency of the Australian fleet post 2025, including the widespread adoption of electric and very low emission vehicles, should then be possible as evidenced by the vastly superior performance of the EU fleet.

9. *How would standards affect the range of vehicles offered in Australia?*

Given that most vehicle models from mainstream auto manufacturers are now international in nature, it is unlikely to substantially change the broad range of models on offer in the Australian marketplace. However, the following changes might be expected:

- Changed engine technologies (eg greater use of small turbo charged petrol and diesel engines, more hybrid vehicles) and/or lower engine capacities in mainstream models.
- Greater availability of smaller city cars, below the light car class, (for example the Ford Ka).
- Higher pricing on cars with low fuel efficiency/higher emissions, either at the manufacturers discretion to balance overall fleet emissions or as a result of penalty charges for exceeding emissions thresholds. These may result in some low volume, high emission vehicles departing the Australian market.

Ideally it would also encourage the introduction of electric vehicles (and other ultra low emissions) vehicles by most manufacturers, particularly if supported by 'Super Credits' under the Standard.

10. *Apart from standards, are there any complementary or alternative measures that could be adopted to encourage the purchase and supply of more fuel efficient vehicles?*

The South Australian Government is currently reviewing its Low Emission Vehicle Strategy 2012-16 and will consider measures to encourage the purchase of lower emission vehicles (including electric vehicles).

11. *What would be the most efficient and effective measures to improve the fuel efficiency of heavy vehicles in Australia?*

It is proposed that the largest, cost-effective improvements in heavy vehicle fuel efficiency and cleanliness (lower toxic emissions) would be achieved through more rapid fleet renewal to the latest and most efficient Euro VI compliant diesels, coupled with the retirement of older and high-service vehicles (including pre-1996 vehicles with rudimentary toxic emissions control systems). Australian Government financial and taxation measures that further assist new capital investment in fleet should be considered.

While potentially lower emission forms of heavy vehicle road transport exist, such as CNG/LNG, suitable vehicles and in particular supporting infrastructure is severely limited. It is suggested that these technologies continue to be trialled.

In regard to the freight task, significant efficiencies (lower g CO₂ per tonne km) are achievable by consolidating freight onto larger heavy vehicles, particularly for long-haul routes. This may also include a mode shift to rail or sea when available. Hence unlike light vehicles where smaller vehicles are likely advantageous to reducing total emissions, for heavy vehicles this may be achieved through larger vehicles and improved planning of the freight task.

12. *Should the Australian Government conduct a review to consider whether fuel efficiency measures for motorcycles should be adopted in Australia?*

It is suggested that motorcycle fuel efficiency (and associated emissions data) should be measured and recorded in the same way as motor vehicle fuel efficiency, thus providing consumers with readily available, comparative information across motorcycle engine capacities and motorcycle brands.

Motorcycles seem to range in fuel efficiency from:

- about 1.5L/100km for a small 50cc scooter to 2.8L/100km for a large 110cc scooter
- about 3-4L/100km for a 250cc bike to about 5L/100km for a 600cc bike.
- about 4-5L/100km for a 900c bike to about 6-7L/100 for a large 1700-1800cc bike.

Obviously these figures would vary by rider and by the duty cycle ridden, however they suggest that motorcycling can range from very low emission to a moderate level of CO₂ emissions form of transport (on a passenger kilometre travelled basis).

Should the Australian Government conduct a review to consider whether it should introduce noxious emissions standards for motorcycles, then this could provide the data needed to enable a calculation of fleet fuel efficiency. However, given the relatively small number of motorcycle kilometres travelled (~1%) and the generally much lower fuel use of motorcycles vs cars, it is unclear if there will be any benefit in mandating a fleet standard.

13. *Are there changes to fuel quality standards that could assist with reducing noxious emissions and/or CO₂ emissions?*

It is recognised that further reduction of the sulfur content of Australian petrols to 10ppm (down from the current 150ppm in ULP and 50ppm in PULP) to be in line with the EU, Japan, the USA (from 1/1/2017) and China from 2018 would allow for new vehicles with improved noxious emissions performance. In particular reduced NO_x, Hydrocarbons and S-related particulate matter due to improved performance and longevity of the 3-way catalytic converter. Very low sulfur fuel may also further improve the noxious emissions performance of existing Euro 5/6 vehicles within the Australian fleet.

Significant improvements in urban air quality and public health outcomes would likely flow from such changes. Some improvements in CO₂ emissions performance of the fleet may also be achieved through the greater use of more efficient Gasoline Direct Injection (GDI) technologies, with the improved catalytic converter performance enabled by very low sulfur fuel to enable the control the addition noxious emissions (particularly NO_x) that would otherwise arise from GDI.

However, the South Australian Government is unaware of the costs and challenges of achieving such changes across both Australian refined and import petrols, noting that Singapore itself is yet to introduce 10ppm sulfur petrol.

14. *Do you have new information that could assist with the assessment of costs and benefits of adopting more stringent fuel quality standards, in particular for petrol?*

No. However, if the quantum of noxious emissions reductions that could be achieved by the adoption of petrol standards akin to the EU, Japan and the USA was to be determined, then the likely benefits to urban air quality in Australian cities and the improvements in public health could be assessed.

The US EPA has estimated that the Tier 3 reduction to 10ppm from the current 30ppm in the USA will cost less than 1c per US gallon and will prevent up to 2,000 premature deaths by 2030 and substantially reduce the respiratory problems of tens of thousands of individuals. Whereas the American Petroleum Institute suggested a cost of 6-9c per gallon recognising that many refineries would require substantial capital investment to be able to achieve the lower limit that would need to be amortised (and may see the closure of some refineries).

- 15. *To what extent, if any, do current fuel quality standards limit the choices of vehicles/technologies in Australia and why?***

We understand that Australia's relatively low fuel quality standards, particularly for petrol, compared to most other industrialised/OECD countries limits the emissions performance and possibly the fuel efficiency of some Australian vehicles. However, we are not aware of any vehicles not able to operate in Australian on 50ppm sulfur 95/98 RONPULP fuel (although a lower state of engine tune may need to be employed).

- 16. *Are there other measures that governments could adopt to encourage the supply and purchase of higher quality fuels?***

Phasing out of the existing 91RON ULP would remove 150ppm sulfur fuel from the market place, but at a significant cost to owners of Australian, Japanese and South-East Asian market vehicles designed to operate on this lower octane fuel.

- 17. *Have you found the information provided on the fuel consumption label and the Green Vehicle Guide website useful in considering the purchase of a new vehicle?***

The South Australian Government endorses the Green Vehicle Guide and actively encourages prospective vehicles purchasers to access the site for comparative information on the fuel efficiency and emissions performance of vehicles (eg through the South Australian Low Emission Vehicles website: www.lowemissionvehicles.sa.gov.au).

- 18. *How could the information provided on the fuel consumption label and the Green Vehicle Guide be improved to encourage the purchase of more efficient vehicles?***

The Guide may be improved through the adoption of fuel efficiency and emissions ratings based on Real Driving Experience tests rather than ratings as derived from dynamometer testing to the existing New European Drive Cycle. German studies based on large corporate fleets have shown that while the official test figures have markedly improved over the past 10-20 years, the actual experience of fleets on a like-for-like vehicle basis was less than half of the official reductions, suggesting a fair degree of gaming by manufacturers to reduce their official figures.

Suggest that the information in the Green Vehicle Guide on annual fuel costs for a particular vehicle (assuming a standard distance travelled) be carried forward to the vehicle fuel efficiency/emissions label. This annual cost information could also potentially be carried forward to the marketing materials of manufacturers (websites, brochures).

Also suggested that any further evidence (that more fuel efficient, low emission cars often have better retained value and hence even lower total costs of ownership (eg by reference links to annual the NRMA/Australian Automobile Association assessments).

19. *Have manufacturers and dealers found the information provided on the fuel consumption label and the Green Vehicle Guide useful for product planning and marketing?*

Acquisition of vehicles for the State Government fleet has been guided by the official fuel consumption and CO₂ emission figures as recorded in the Guide.

20. *At what point in the decision making process is information on vehicle efficiency most effective in influencing purchasing decisions and what information mediums are most effective?*

While the Green Vehicle Guide is an excellent repository of information on vehicle performance, it is not particularly well packaged for use by 'purchase influencers' such as motoring websites. Suggest that opportunities be explored for new ways of presenting the data with potential customer groups.

Further, if a prospective buyer is interested in a particular car, it is a fairly laborious task to compare it against others in its particular market segment. Suggest a link to a graphic showing where "Car X" fits relative to other vehicles in its class.

21. *What could governments do to improve the availability of data on fuel efficiency of used vehicles?*

Promote the Green Vehicle Guide at point of sale such as used car dealerships.

Advertise the Guide and its benefits on website such as Car Sales.

22. *How could governments encourage more efficient driver behaviour?*

In the heavy vehicle arena governments would get the best results by focussing on owner drivers and small fleets, particularly local operations and smaller vehicles, as these have the least resources to manage fuel consumption issues.

For general fleet vehicle use (both heavy and light vehicle), the incorporation of GPS devices that record vehicle use, speed, driving patterns, etc have proved effective in moderating drive behaviour.

For private vehicles, consider the use of smartphone applications that assess driving style and estimate the fuel that could be saved / emissions avoided / money saved by improved "eco-driving" performance (taking account of the regulatory restrictions of using a phone while driving).

23. *What role, if any, should the Government fleet purchasing policy play in encouraging the supply and purchase of more efficient vehicles?*

The South Australian Government believes that its procurement practices can play an vital role in both improving the fuel efficiency/emissions performance of its own fleet and assisting to bring more efficient or alternative ultra low emission vehicles into the Australian marketplace (particularly if practiced across multiple jurisdictions).

Consistent with this, an Expression of Interest *Reducing Emissions from the Government Fleet* is being undertaken that seeks information in regard to the cost effective ongoing supply, maintenance and fuelling strategies of motor vehicles with low or zero emissions that meet operational requirements to the Government of South Australia. The EOI process includes the provision of the supporting infrastructure that would be needed to recharge electric vehicles or to refuel alternative vehicles. The Government purchases approximately 2,700 new light vehicles annually.

A similar EOI process is being undertaken for State-owned Adelaide Metropolitan Bus Fleet, with a focus on first trialling new driveline technologies to ensure that they can meet service requirements.

24. *How could taxes and charges for motor vehicle purchase and/or use be reformed to encourage the purchase and supply of more efficient vehicles?*

Luxury Car Tax

Opportunities for the Australian Government to incentivise electric and ultra low emission vehicles should be considered.

It seems likely that the pathway to the adoption of electric vehicles (including plug-in hybrids) in Australia will in large part, be initially driven by luxury car makers such as Tesla, Mercedes, Volvo, etc.

The Luxury Car Tax (LCT) threshold is currently set at \$63,184, with a higher threshold of \$75,375 applying for vehicles that consume 7L/100 km or less. The LCT is then applied at a rate of 33% on the amount above the threshold. Arguably, this provides a valuable concession for small to mid-sized luxury diesel cars, but provides little incentive for similar electric or plug-in hybrid vehicles due to their higher manufacturer's pricing (as a result of the high cost of the large battery systems in EVs and the extra complexity of the dual drive train system in a PHEV).

To incentivise genuinely ultra low emission vehicles, in particular EVs, it is recommended that the LCT be waived completely or otherwise set a very high level (eg \$150,000). This concession would then apply for the establishment phase of electric vehicles (say 10 years), thereafter it could be wound back or removed. Significantly greater numbers of luxury EVs on Australian roads will provide a stronger basis for the establishment of recharging infrastructure by Governments, private businesses such as services stations, and the car manufacturers themselves.

The current single concession in the LCT for all vehicles using <7L/100km also seems limited. Suggest lowering this limit to reflect the improved performance of most vehicles since the limit was previously set, or by providing a greater concession for even more fuel efficient vehicles (eg < 5 L/100km)

Fringe Benefits Tax

The Government should also consider waiving Fringe Benefits Tax (FBT) on electric and plug-in hybrid vehicles during their establishment phase. Approximately half of new cars sales are made by fleets where any private use of the vehicle attracts the statutory 20% FBT. Also, employees who acquire private vehicles via a novated lease arrangement also attracts a 20% FBT charge.

Given that the FBT is calculated annually against the full initial cost of the vehicle, it impacts heavily on EVs and PHEVs that have relatively high purchase costs compared to equivalent conventional vehicles. Even if the EV/PHEV entail significantly lower running costs and can achieve higher resale at end of lease (to otherwise be cost competitive over 3 years) it will be significantly disadvantaged by a much higher FBT charge.

It is recommended that the FBT applicable to EV/PHEVs for employee private use of company cars and for novated leasing be waived during the establishment period for these vehicles. Incentivising EV/PHEVs as company cars will likely provide a significant spike in supply and affordability for the secondhand market at end of lease.

- 25. *To ensure incentives do not have any unintended consequences on air quality, should incentives include noxious emissions requirements as well as CO2 requirements, or do current noxious emissions standards sufficiently mitigate this risk?***

Recent evidence from the International Council on Clean Transportation has demonstrated that Euro 6 compliant, diesel powered vehicles from many manufacturers fail to meet NOx standards under real world driving conditions. Hence even if noxious emissions under the Euro 6 Standard are considered to be safe, real world emissions from certified vehicles may be significantly higher. However, this situation is expected to change under Euro 6 requirements as the current New European Drive Cycle test for the measurement of emissions is replaced with tests that better simulate real world driving conditions.

It would seem reasonable to limit any concessions (particularly the LCT) to vehicles that are both fuel efficient and Euro 6 compliant, however this may be difficult until Australia formally adopts an equivalent standard under ADR 79.

- 26. *What measures could be adopted to improve consumer awareness of the benefits of alternative fuelled and electric vehicles, particularly where they complement environmental benefits?***

The South Australian Government has sought to improve awareness of these vehicles through the provision of information to individuals and fleets (eg www.lowemissionvehicles.sa.gov.au).

The Government has also supported initiatives that enable people to drive an electric vehicle or low emission vehicle for themselves. These include:

- The Kangaroo Island Visible Solar Project where visitors to the Island can hire a Nissan LEAF EV at the Kingscote Airport, which can then be recharged at 6 charging stations across the Island.

- A car share project with the Adelaide City Council, the Conservation Council SA and GoGet that enables people to use a Mitsubishi Outlander PHEV based in the CBD on a car share basis.
- Green Drive Programs associated with the World Solar Challenge that enabled members of the public to book a test drive of various electric and low emission vehicles.

However, these vehicles are most likely to be noticed by the public when they see them in regular service performing routine tasks. Hence measures that favour their early uptake by individuals, and particularly by fleets, may be important in encouraging sales.

27. *What measures could be adopted to encourage the supply of alternative fuelled vehicles and supporting infrastructure, to reduce emissions from road transport?*

As articulated elsewhere in this response, in particular:

- Financial incentives through Australian Government taxation measures.
- Incentives for auto manufacturers to bring such vehicles to Australia through a Super Credits scheme (under a proposed Mandatory Fleet Average Emissions Standard).
- Support for programs to enable people and organisations to experience such vehicles.
- In the case of alternative fuels (such as biofuels, hydrogen and CNG/LNG) support for R&D to develop the fuels, supporting infrastructure and to demonstrate their local applicability.

Supporting infrastructure (eg recharging facilities) will likely start to be provided by the private sector (eg service stations, shopping centres and workplaces) once cars become affordable and commonplace. Until then, part Government subsidy may continue to be required.

28. *How might fuel standards need to be adapted to accommodate alternative fuels?*

Alternative fuels (biodiesel and ethanol blends) should be specified to a standard that enables them to match or better the emissions performance of mineral diesel or petrol fuel that they replace.

Ideally fuel efficiency and emissions measures would be undertaken for both petrol and E10 (and possibly for diesel and any common biodiesel blend), to better inform consumers and fleet managers of the relative toxic emissions performance, fuel economy, carbon emissions and fuel cost when operating a vehicle on each fuel type.

29. *Should the Australian Government conduct a testing program to assess the effectiveness of UN Regulations in reducing real-world emissions?*

The Australian Government should ensure that independent testing is undertaken, not only to assess the effectiveness of UN Regulations, but to ensure that defeat devices

(such as used by VW) are not in use in this country. Ideally this would take place in Australia, however the lack of suitable facilities is liable to inhibit our ability to do such tests.

Work will also likely be needed to establish the new drive cycle test specified for adoption under Euro 6, as well as any real world testing measures developed in the EU, for local Australian application. This will also need calibration of new measures against the old measures determined by the New European Drive Cycle test method as currently reported in the Green Vehicle Guide.

With the departure of the light vehicle manufacturers from Australia, the number of facilities able to perform drive cycle tests has been drastically reduced. There are now very few such facilities in the country, whether in private or government hands.

In South Australia, the Department of Planning, Transport and Infrastructure's (DPTI) facility at Regency Park has been "mothballed" and would require substantial new investment to return to operation (and may need further investment to be able to operate to alternative drive cycles). Equipment to conduct Real Driving Experience testing off the dynamometer would also require significant new investment.

With the shut-down of the DPTI facility there is no emissions testing facility in SA suitable for vehicle certification or emissions research in the State. This lack of local capability has inhibited the local development of such products as LPG fuel conversion kits and has hampered university research.

NISE 1 indicated that modified vehicles can be a substantially greater source of gaseous pollution, particularly unburned hydrocarbons, than standard vehicles. Currently, in order to test modified vehicles, DPTI relies on reports from one private facility, which uses equipment better suited for repairs and tuning.

It is recommended that the Australian Government give consideration to the compliance and testing regime needed to ensure that local vehicles meet Euro 5/6 noxious emission standards and are able to accurately report their fuel consumption and CO₂ emissions under local conditions, both for the existing NEDC test and under any future drive test cycle. This would include State-level compliance of defective and modified vehicles, and research activities into vehicle emissions. The review should extend to what organisations would conduct such testing and the means of payment/funding.

30. *How should the costs of a testing programme be met?*

The costs of testing to establish the compliance of new vehicle models with Standards applicable to the Australian market should be met by auto manufacturers/importers.

However, the costs of any in-service testing to ensure that the vehicles remain compliant, or that cheat devices are not present is less certain.

It is suggested that the Australian Government give consideration to a national compliance regime, which considers the risks of non-complying vehicles, the roles of States and research requirements, with the view to developing a strategy to ensure that the required testing can be undertaken to appropriate standards.

31. *How could UN Regulations for vehicle emissions testing be improved?*

As previously discussed, by adopting testing procedures that better reflect real world driving cycles and vehicles loads that are achieved on the current New European Drive Cycle dynamometer test.