14th April, 2016

The Emission Working Group
Department of Infrastructure and Regional Development
GPO Box 594
CANBERRA, ACT, 2601
Submissions to: vemissions@infrastructure.gov.au

Subject: TIC submission to the Australian Government's Vehicle Emission Discussion Paper, released 11th February 2016

The Truck Industry Council (TIC) is the peak industry body representing manufacturers and distributors of heavy commercial vehicles (that is, with Gross Vehicle Mass (GVM) above 3,500 kg) or "trucks" in Australia. TIC members are responsible for manufacturing or importing and distributing 17 brands of heavy vehicles for the Australian market, totalling almost 28,000 units sold each year.

Further, TIC also comprises two dedicated engine manufacture members and one dedicated driveline manufacture member who supply major engine and driveline systems for both on highway and off highway "truck" applications.

In this written submission TIC has chosen to make comment on issues pertaining to the Australian Heavy Vehicle (truck) fleet only. TIC has specifically not made comment with regard to Light Vehicle emissions.

Options to reduce vehicle emissions

Adopt Euro 6 noxious emission standards for heavy vehicles

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?**
   TIC cautiously supports the Government's proposed move to higher emission standards (Euro 6 and approved equivalents) for heavy vehicles in Australia. TIC and its member companies have always supported federal government moves to improve both safety and environmental outcomes of new heavy vehicles sold in Australia. In fact there are four (4) TIC member companies that are currently offering a selected range of Euro 6 heavy duty trucks for purchase in Australia, well before the mandation of more stringent emission standards. However TIC feels compelled to question the federal government's intent for the introduction of Euro 6 (and equivalent emission standards) engine exhaust emission standard for heavy vehicles based on the following factors and evidence:
   1A. Does Australia have noxious gas air quality/pollution issues caused by new heavy vehicles?
   TIC believes the answer to this question is NO. Currently all new trucks sold in Australia are required to meet ADR80/03 (Euro 5 and approved equivalent regulations) and have done so since January 2010 (for New Model trucks) and January 2011 (for All Model trucks). Yet despite the Australian introduction of ADR80/03 (Euro 5 and equivalents) some five (5) years ago, less than thirteen (13%) percent of on road registered trucks meet this standard (this is based on data from the Australia Bureau of Statistics 2014 Motor Vehicle Census). The same data shows that 14.4% of trucks comply with ADR80/02 (Euro 4 and equivalents), 24.7% comply with

ADR80/00 (Euro 3 and equivalents), 18.3% comply with ADR70/00 (Euro 1 and equivalents), while a massive 30.0% comply with NO exhaust emission standard at all (please see Figure 1). The "take-up" of heavy vehicles by operators that comply with cleaner engine exhaust emission standards has been quite poor when compared to most other developed countries that Australia would like to be benchmarked against.

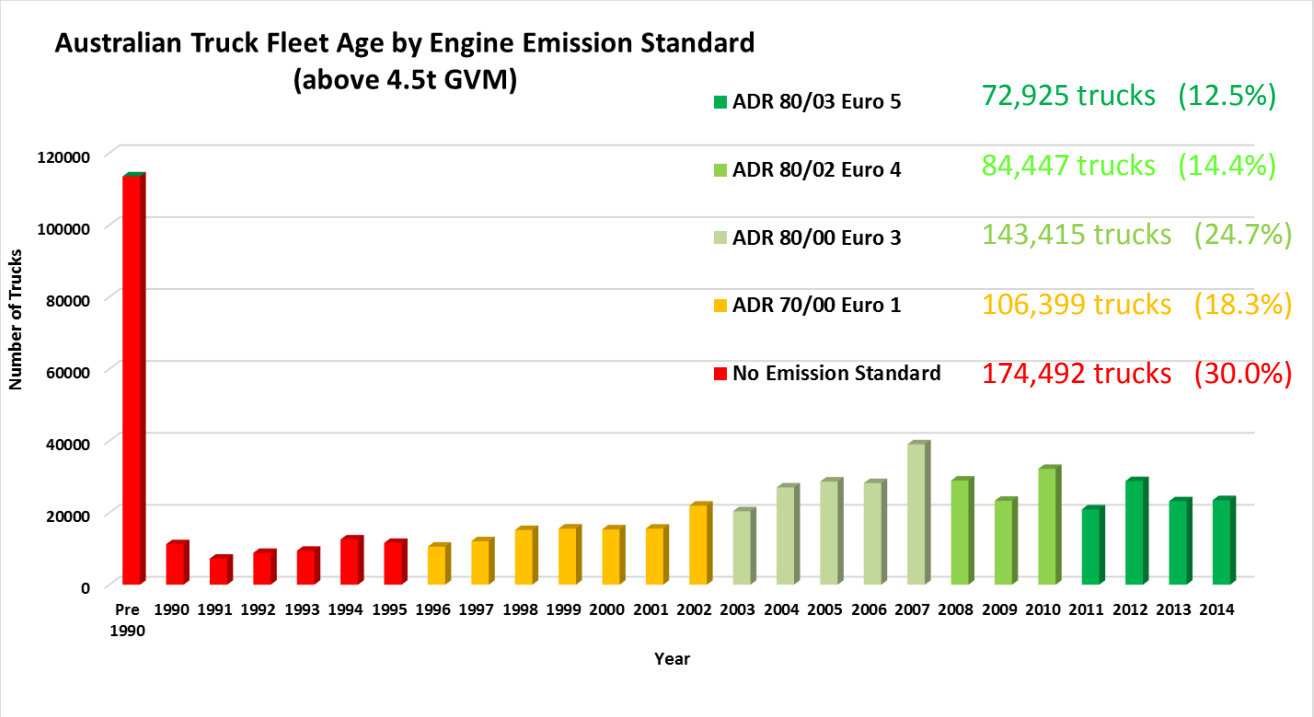

FIGURE 1

Any noxious gas air quality/pollution issues that Australia may have are cause by the trucks that do not meet the current ADR80/03 (Euro 5 and equivalents), specifically almost half the Australian truck fleet (48.3%) that meet NO emission standard or the very basic ADR70/00 (Euro 1) emission standard. To further illustrate this point TIC points out that a pre-1996, ADR70/00 (one that meets NO Emission standard) truck emits Particulate Matter/Black Soot (PM) at an amount sixty (60) times that of an Euro 4 or Euro 5 truck (please see Figure 2), while an ADR70/00 (Euro 1 and equivalents) truck emits Particulate Matter/Black Soot (PM) at an amount twenty five (25) times that of an Euro 4 or Euro 5 truck.

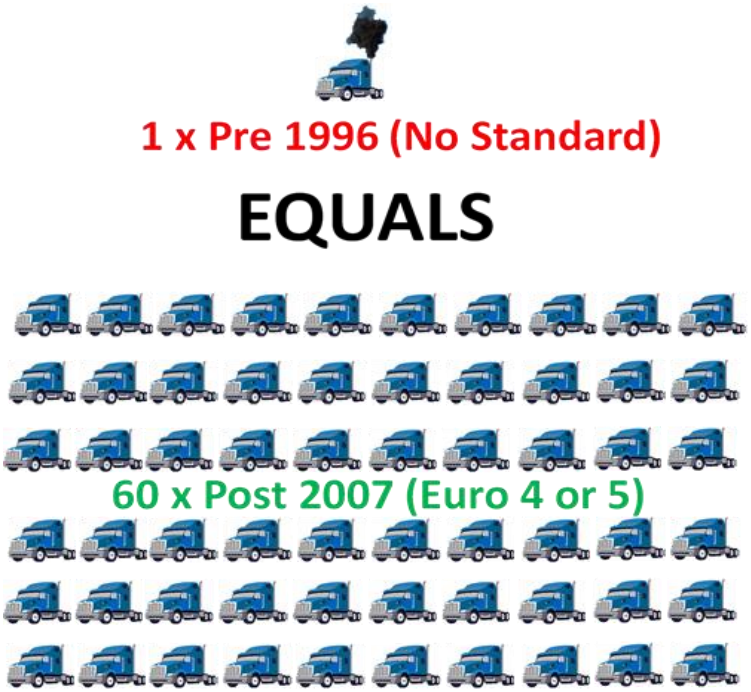

FIGURE 2

Summary: Any noxious gas air quality issues caused by on-road heavy vehicles in Australia are as a result of the disproportionate mix of old (particularly pre-2003) trucks that operate on our roads.

1B. Why is the uptake of current ADR80/03 (Euro 5 and equivalent) trucks so poor? As truck manufactures have complied with ever more stringent engine exhaust emission standards engines have become more sophisticated and more complex, they have also become a lot heavier due to the additional equipment required to meet the low levels of noxious exhaust emissions. A typical Euro 5 or equivalent 6x4 prime mover is approximately 1000kg heavier than a pre-1996 6x4 prime mover and while some of that increased weight is a result of added safety features (that has improved heavy vehicle safety for all road users and is a positive outcome for road safety) the majority of the weight increase has come from engine emission compliance. Over the same period statutory axle weights for a 6x4 have increased by only 500kg, leaving a 500kg loss in vehicle productivity. Lower vehicle productivity also requires MORE trucks to achieve the same freight task outcome, increasing traffic densities and the likelihood of accidents. More trucks to carry the same freight task also means a potential increase in CO_2 emissions. The typical further weight INCREASE for a heavy vehicle that has been seen in Europe, Japan and the USA when those countries or regions moved from Euro 5 to Euro 6 (or the equivalent standards) is typically between 200kg and 300kg depending on the type and size of truck.

The cost of this government regulated emission compliance has also not come cheaply for truck manufacturers and customers alike, with operators paying for the cost of this mandated cleaner technology when purchasing a new heavy vehicle. Together with the above weight increases, this has resulted in a new ADR80/03 (Euro 5 and equivalent) truck being less productive and relatively more expensive than older existing trucks. Many operators have simply chosen to keep their older truck/s, rather than replace them with less productive, more expensive new trucks. The result of these actions is clearly visible in both the average age of the Australian truck fleet and new truck sales. Figure 3 clearly shows that the average age of Australia's truck fleet has grown from 13.66 years in 2009 to 13.91 in 2014. TIC predicts that the average age will exceed 14 years in 2015 when the data is released. While trucks sales remain "flat" (as has been seen over the past six years), they are not increasing to keep pace with the growing freight task, resulting is an aging truck park.

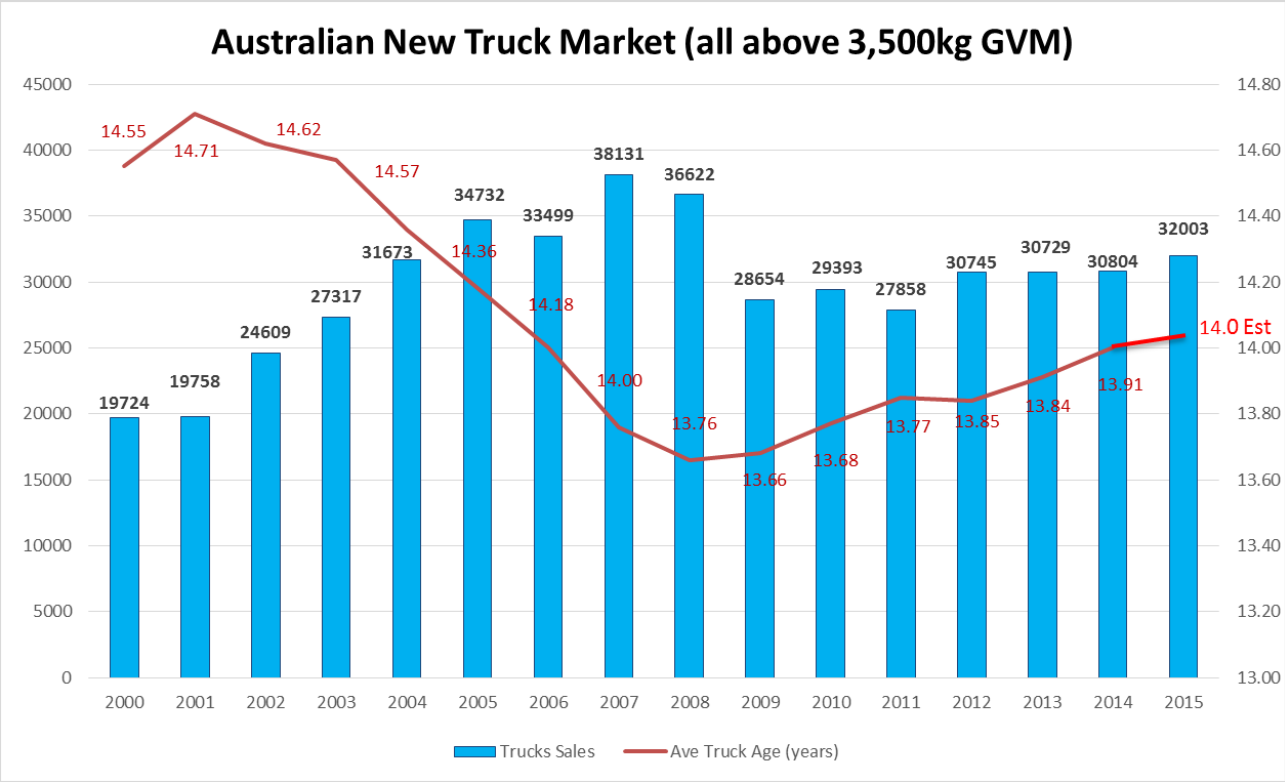

FIGURE 3

Note: Average truck age is based on data from the Australia Bureau of Statistics 2015 Motor Vehicle Census. New truck sales data is from 2015 TIC T-Mark data.

Summary: The uptake of new ADR80/03 (Euro 5 and equivalent) heavy vehicles has been poor because these trucks are heavier (less productive) and relatively more expensive than older trucks due to mandated exhaust emission standard compliance. Without government incentives the uptake of Euro 6 and equivalent trucks will be even worse as these trucks are even heavier (200kg to 300kg increase, a further loss in productivity) and more expensive than current Euro 5 and equivalent trucks.

1C. What is the likely outcome for Australia to move to Euro 6 (and approved equivalents) emission standards for new heavy vehicles, without any government incentives? **Based on the recent experiences from the introduction of ADR80/02 and ADR80/03 (Euro 4 and Euro 5 and their approved equivalents) new truck sales will slow further, there will be a continued and likely accelerated increase in the Australian truck park age (beyond the current 14 year average) resulting in a REDUCED uptake of these new environmentally cleaner and safer trucks. Meanwhile, the older (pre-2003) trucks that ARE making a disproportionate contribution to noxious gas air quality issues in Australia will REMAIN on our road networks. The likely benefit in the short and medium term will be a handful of "super clean" new Euro 6 and equivalent trucks that will also be safer, but less productive. This will NOT make any appreciable difference to Australia's current noxious gas air quality issues.**

1D. What incentives are required to ensure sufficient take-up rates of Euro 6 and equivalent heavy vehicles? **Please refer to TIC's response to Question 4.**

1E. Are on-road vehicles the only source of Australia's current noxious gas air quality issues?
With the federal government taking a "whole of government" approach to this issue, TIC reminds the government that noxious gas air quality issues from on-road vehicles makeup only a very small part of Australia's overall noxious gas air quality issues. A SIGNIFICANT contributor to these air quality issues comes from all the "unregulated" off-road engines that operate in Australia, such as diesel and petrol powered boats, ships and trains, stationary engines and power generation, earthmoving, construction and mining equipment, recreational vehicles and equipment, etc. These internal combustion engine powered vehicles, devices and equipment have NO exhaust emission regulation and unlike most developed nations and an increasing number of developing nations, government in Australia has chosen to ignore these sources of noxious gas emissions. Rather government has chosen to put ever increasing cost and burden on the on-road vehicle sector.
To put the noxious exhaust emissions of on-road verses off-road engines into some form of perspective TIC details the following taken from the NSW-EPA Reducing Emissions from Non-road (termed "off-road" by TIC in this document) Diesel Engines Report – August 2014. This EPA report, on Pages 11 and 12, details: "*Heavy duty non-road* ("off-road" using TIC's terminology) *diesel vehicles and equipment, which consume the majority of the non-road* (off-road) *diesel fuel within the NSW Greater Metropolitan Region, are estimated to have a* $PM_{2.5}$ *emission intensity approximately* ***six times higher*** *than that of the* (current) *on-road diesel vehicle fleet (Table 4)."*
Table 4 from the EPA report is reproduced below.
On a national basis the EPA report concluded: "(Nationally in Australia) *this means that for every litre of fuel combusted, non-road* ("off-road") *diesel engines* ***emit five times more*** $PM_{2.5}$ *when compared to* (the current) *on-road diesel vehicle* (fleet).

Table 4:

$PM_{2.5}$ emission intensity of non-road and on-road vehicles and equipment based on the NSW Greater Metropolitan Region (2008)		
Type	Source	$PM_{2.5}$ emission intensity (g/L)
Non-road (a) (TIC termed "off-road")	Coal mining vehicles and equipment	2.73
	Other industrial vehicles and equipment (excluding coal mining)	2.86
	Aircraft (ground operations)	0.6
	Commercial boats	0.75
	Commercial off-road vehicles and equipment	3.26
	Recreational boats	1.56
On-road	Light and Heavy on-road diesel vehicles	0.48

(a) Non-road diesel engine figures EXCLUDE: locomotives, shipping and large marine diesel engines (greater than 37kW). Non-road diesel engines INCLUDE: construction and mining, lawn and garden, airport service, recreational, light commercial, industrial, agricultural and logging diesel equipment in addition to some commercial marine engines less than 37kW.

Additional points to note, while this particular EPA data was collected for $PM_{2.5}$, similar conclusions can be drawn for the more common noxious gas emissions of PM_{10} and NOx. Also, the above data excluded all diesel locomotives, shipping and larger marine diesel engines (those with power outputs above 37kW), if the emissions from these unregulated diesel engine sources as well as unregulated petrol engines were included, the actual impact of unregulated noxious exhaust emissions in Australia is truly MASSIVE.

Summary: If government is truly serious about addressing Australia's noxious gas air quality issues then they MUST, in their current "whole of government" review of emission standards, tackle the "elephant in the room", that of "unregulated" engines used for purposes other than on-road vehicles.

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

Australia is a "technology taker" when it comes to heavy vehicle engine development and the development and adoption of exhaust emission regulations. The current Australian heavy vehicle engine emission regulation, ADR80/03, adopts Euro 5 as the primary standard and also allows the approved equivalent standards USA-EPA 07 and Japan MLIT regulation JP05 NLT as optional/alternative methods to demonstrate compliance. The Second Revision of ADR80/03 additionally allows trucks to be certified to the more stringent Euro 6 standard as well as optional/alternative standards USA-EPA10 (with OBD) and Japanese MLIT JP09 PNLT. Since its inception in 2001, TIC has supported the adoption of stricter emission standards in line with, but introduced slightly behind (typically three years) these countries where our truck engines are sourced from. The introduction dates of the Euro 6 (2012 in Europe), or equivalent regulations JP09 PNLT (2009 in Japan) and EPA07 (first introduced in 2007 in the USA, then updated with full OBD's in 2010), are already starting to lag these countries/regions by well over three years. This is not to say that Euro 6 trucks do not exist in Australia. As detailed in TIC's response to Question 1, four (4) TIC members are currently offering selected Euro 6 models to Australia, some have been doing so for two years now and while their actions should be commended it does come with consequences. One of those is the increased cost of supplying both Euro 5 models (to remain cost and productivity competitive in the Australian market place) and Euro 6 models. Spare parts, training, vehicle stock, etc, costs are all increased due to the "double-up" of some vehicles in their model ranges. These costs need to be passed on to the customer and obviously add to the truck operator's expenses.

As Australia is a "technology taker" and the major vehicle markets where the technology is developed moved to the Euro 6, or the equivalent Japanese or USA, engine emission standards three or more years ago now, overseas development of Australian Euro 5 and equivalent emission regulation platforms (trucks) has effectively ceased. So further improvement in vehicle

safety technology such as stability control systems, autonomous emergency braking systems, lane keep assist systems, etc, will not be practical on "old" Australian Euro 5 and equivalent models. These newer safety systems and technologies will not, or cannot, be built into existing Euro 5 and equivalent trucks for both economic and technical reasons. In most cases the Australian market will have to wait until we move to ADR80/04 (Euro 6 and equivalents) before many of these newer safety technologies and systems will be developed and available in Australian truck models. By mandating Euro 6 and equivalents, the Australian government will, somewhat by default, ensure that many of these advanced safety systems will be available to the Australian truck operator when they purchase a new Euro 6, or equivalent, heavy vehicle.
TIC calls on the Australian Government to make a clear decision to mandate ADR80/04 (Euro 6 and equivalent standards) in-line with the schedule recommended below in this submission, otherwise the continued proliferation of both Euro 5 and Euro 6 models will add unnecessarily to the cost of road transport in Australia. TIC also points out that currently only European truck manufacturers and typically those with Euro 6 models that have been developed for the Right Hand Drive (RHD) United Kingdom markets have found it economically viable to offer such Euro 6 models in Australia. To some extent this is limiting the choice of available Euro 6 (and equivalent) trucks for the Australian operator.
Due to the product development cycle for a major change to a truck, such as a new engine, as is the requirement for the mandation of Euro 6 and equivalents, TIC and its members require a minimum of three (3) full years from the gazettal of ADR80/04 (Euro 6 and equivalents) for the introduction of New Models and four (4) full years for the introduction of All Models.
Given the indications at both the first and second Government and Stakeholder Vehicle Emission Workshops, the current government review, ADR development and the Regulatory Impact Statement (RIS) process will conclude sometime in the latter part of 2017. Therefore TIC understands that the gazettal of ADR80/04 is scheduled before January 1st 2018. Given the product development timelines for a heavy vehicle detailed above, TIC suggests that an introduction date of ADR80/04 (Euro 6 and equivalent emission standards) for New Model heavy vehicles of January 1st 2021 and an introduction date for All Model Heavy Vehicle of January 1st 2022 would be a realistic and workable schedule.

3. **To what extent do current Australian fuel quality standards limit the adoption/import of existing technologies and models that meet Euro 6 specifications?**
The current Australian diesel fuel standard, including the 10ppm Sulphur limit, is suitable for both current Euro 5 and equivalent as well as the introduction of Euro 6 and equivalent heavy vehicle engines.
However TIC does have concerns about all future Australian fuel standards, in particular that there are no Bio-diesel fuel standards in Australia other than B100 and with the Department of Environment disbanding the Fuel Standards Consultative Committee (FSCC) in mid 2014 there is now no apparent mechanism in place for the development of new fuel standards, or the review of existing fuel standards in Australia. Evidence of this being that the draft B20 biodiesel standard developed by the FSCC has not progressed to an actual standard. This is despite the fact the draft B20 standard was almost complete just prior to the FSCC's termination. The Department of Environment has not detailed to industry how future fuel standards will be developed, nor how existing fuel standards will be reviewed/maintained. This very important issue MUST be addressed and the FSCC process reinstated, or an effective alternative process for the development of new fuel standards and the day-to-day review and maintenance of existing fuel standards be put in place. TIC has previously raised these concerns in our response to the 2015/16 Statutory Review of the Fuel Quality Standards Act 2000.

4. **Are there other ways governments could encourage the purchase and supply of vehicles that meet Euro 6/VI emissions standards?**
TIC calls for the consideration and adoption of the TIC National Truck Plan that links the current Fuel Tax Credit (rebate) to the engine emission standard of the truck (Please refer to TIC's

response to Question 24 for more detail on this issue). The Department of Infrastructure and Regional Development (DIRD) has a copy of this Plan, previously provided by TIC.
The TIC plan outlines that the monies saved by not paying the fuel rebate to pre-2003 trucks and only a 50% fuel rebate for 2003 to pre-2007 trucks would be given to truck operators who purchase a new Euro 5, or equivalent, or Euro 5 Plus truck in the form of government incentives. The plan has a targeted life of five (5) years, with the possibility to extend the plan for a further five (5) years. More details of this concept are available in TIC's National Truck Plan-V4.
Please also refer to TIC's response to Question 24 that details other State and Territory based incentives that could be deployed to increase the uptake of Euro 5, Euro 6 and equivalent, heavy vehicles.
Please also refer to TIC's response to Question 1 (specifically TIC's comments in 1B), also responses to Question 7, Question 10 and Question 11 that detail heavy vehicle mass and dimensional incentives that must be considered when adopting Euro 6 and equivalent, truck emission standards.
As has been pointed out a number of times in this submission, governments MUST provide incentives to truck operators for the purchase and use of Euro 6 and equivalent, heavy vehicles. The lack of suitable incentives has been a fundamental failing of past heavy vehicle emission regulation introduction, as can now be seen by Australia's very old and further ageing truck fleet.

5. **What measures could governments adopt to ensure vehicles continue to comply with noxious emission requirements beyond the point of supply to the market?**
Currently ADRs are only legally binding, at a federal level, for vehicle manufacturers. Once a vehicle is supplied to market its on-going compliance to the ADRs is the States and Territories responsibility. Tampering with engine exhaust emission and road speed limiting compliance occurs in the heavy vehicle industry. Companies openly advertise engine emission and speed limiting "defeat" devices and these are being used by some operators. Laws prohibiting the advertising, selling and use of these types of "defeat" devices at Federal, State and Territory level, coupled with effective consumer and on-road enforcement by authorities, is essential. Heavy vehicle manufacturers collectively spend hundreds of millions of dollars developing compliant engine emission systems, but within hours of taking delivery of a new truck an operator can have these systems disabled, typically for a few hundred dollars. The lack of any government regulation for off-road vehicle and engine emissions is contributing to this issue, with many of the company's advertising and selling these "defeat" devices claiming that they are to be "used for off-road applications only", a loophole that the government could close by regulating off-road vehicle and engine emissions.

6. **Should the Australian Government conduct a review to consider whether noxious emissions standards for motorcycles should be adopted in Australia?**
TIC believes that any vehicle and/or equipment that is powered by an internal combustion engine that emits noxious exhaust emissions into the atmosphere should be regulated by the Australian Government, this would include motorcycles. Further TIC believes that the "whole of government" approach that is being taken in the review of vehicle emissions must be extended to off road vehicles and engines too. This is further detailed in TIC's response to Question 1, please refer to 1E above).

Develop Fuel Efficiency (CO_2) Standards

7. **What are the costs and benefits of adopting a fleet average standard for fuel efficiency (CO_2)?**
TIC and our members support the government's plans not to introduce mandated fuel efficiency/CO_2 reductions for heavy vehicles. As is currently the case in USA, Japan and Europe, their respective government regulators are finding suitable and workable CO_2 reduction schemes for heavy vehicles very difficult to develop and even more difficult to administer and

enforce (hence the delayed introduction of such measures in those countries/regions). Australia has such a wide and diverse road freight industry when compared to other global markets that determining a 'standard' for fuel efficiency/CO_2 emissions would be an even more complicated process. The transport industry has a vested interest in minimising fuel usage as it is such a significant business expense for their operations and this is of course fully supported by truck manufacturers who are striving to minimise overall fuel usage of the trucks they produce.
It should be pointed out that Australia already has the world's most fuel efficient heavy vehicle combinations with our current B-Doubles, Road Trains and PBS multi-combinations. These vehicles move more freight, by both measures of tonnes per kilometre and cubic metres per kilometre, for a given truck CO_2 output than any other truck combinations in the world, this of course is based on the premise that the prime mover is ADR80/03 compliant (Euro 5 or equivalent emission standard). It is the expansion of mass and volume that can be carried by trucks in Australia that should form the basis of future heavy vehicle CO_2 reductions. This will require a full review of heavy vehicle mass and dimension limits at Federal, State and Territory levels and should be reviewed by the DIRD in conjunction with the National Transport Commission and the National Vehicle Heavy Regulator. This review must also consider evaluation of the "Australian unique" prescriptive vehicle standard requirements such as equal load sharing on axle groups and transitional axle limits for lifting axle/s. Removal, relaxation or alignment with international regulations with the introduction of Euro 6 and equivalent emission compliant vehicles would enable smart suspensions systems which could for example, preferentially load drive axles (up to legislative limits) in 6x2 truck configurations to improve traction thus enabling 6x2 vehicles to be utilised in more traditional 6x4 applications. The advantage in this case is that a 6x2 vehicle is cheaper, lighter and more efficient than a 6x4 vehicle, offsetting the weigh disadvantages of Euro 6 and equivalent engine exhaust technologies. There are many other examples where productivity and efficiency gains could be made with the revisions to the current load sharing and lift axle transitional mass limits. These would be uncovered during a complete and comprehensive review of heavy vehicle mass and dimensional regulations.

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?**
   This type of mandated CO_2 reduction should not be applied to heavy vehicles in Australia. Please refer to TIC's response to Question 7.

9. **How would standards affect the range of vehicles offered in Australia?**
   This type of mandated CO_2 reduction should not be applied to heavy vehicles in Australia. Please refer to TIC's response to Question 7. In addition, TIC points out that the introduction of more restrictive heavy vehicle emission standards for new trucks has resulted in the reduced take up of new heavy vehicles which has increases the truck fleet age in Australia and reduced the take up of new environmentally friendly and safer trucks. The introduction of mandatory CO_2 reduction regulations for new heavy vehicles may reduce the available truck models for sale in Australia (due to an increased cost of regulation compliance) and/or further impede the take up of new trucks, accelerating the age of Australia's truck park.

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?**
    Fuel is one of the most significant operating costs associated with running a truck, or truck fleet. Both operators and truck manufactures strive to reduce fuel consumption as part of their everyday business practices. One positive way government could reduce the fuel consumed to deliver a tonne, or cubic metre, of freight would be to allow increased axle masses, GVMs and GCMs as well as allowing increased vehicle dimensions, particularly vehicle width and length for new Euro 6 and equivalent heavy vehicles. The Federal Government should work with State and

Territory governments, the National Transport Commission, the National Heavy Vehicle Regulator and the road transport industry to allow the development of a more efficient road transport network for heavy vehicles, reducing CO_2 emissions in the process.

11. **What would be the most efficient and effective measures to improve the fuel efficiency of heavy vehicles in Australia?**
    As detailed in TIC's responses to Questions 7 to 10 above, allow each vehicle to carry more mass and volume (increase axle weights and vehicle dimensions). Also allow the use of aerodynamic devices that are being developed in Europe and the USA by truck manufacturers to be brought to Australia by increasing vehicle width to 2.6m (our current maximum vehicle width of 2.5m prevents many of these developments from coming to Australia, as it is simply not justifiable to re-engineer these items for Australia's current narrow maximum vehicle width regulations and low heavy vehicle new sales volumes. Heavy vehicle (truck and trailer) dimensional length limits should also be reviewed to allow aerodynamic devices to be fitted outside of the vehicle "freight" envelope, that is, a new and separate dimension should be allowed for aerodynamic devices over and above the existing maximum vehicle/body/combination lengths. Finally government should encourage the take up of hybrid and alternatively fuelled and powered trucks by offering suitable government incentives, both monetary and additional mass (particularly applicable/required where the alternative technologies come with a weight penalty compared to a conventional diesel fuelled truck).

12. **Should the Australian Government conduct a review to consider whether fuel efficiency measures for motorcycles should be adopted in Australia?**
    TIC makes no comment on this issue.

Other complementary measures

Fuel Quality Standards

13. **Are there changes to fuel quality standards that could assist with reducing noxious emissions and/or CO2 emissions?**
    No, the current mandated Australian Diesel fuel standard is equivalent to the fuel standard in those in countries that have adopted Euro 6 and equivalent truck engine emission standards. However fuel standards for Bio-diesel need to be developed and legislated in Australia. Please refer to TIC's reply to Question 3 for further details relating to Diesel and Bio-diesel fuel standards.

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?**
    TIC's only comment on this issue is that the current Australian diesel fuel standard is adequate to support Euro 6 and equivalent emission standards for Heavy Vehicles. New trucks in Australia do not typically use petrol as a fuel.

15. **To what extent, if any, do current fuel quality standards limit the choices of vehicles/technologies in Australia and why?**
    The current Australian Diesel fuel quality standard does not have any effect on the choice of heavy vehicles or emission technologies in Australia, as our current Diesel fuel standard is equivalent to the fuel standard in those in countries that have adopted Euro 6 and equivalent truck engine emission standards.

16. **Are there other measures that governments could adopt to encourage the supply and purchase of higher quality fuels?**
    TIC believes that suitable Bio-diesel standards must be developed and legislated in Australia. Please refer to TIC's responses to Questions 3 and 13.

Information and Education

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?**
    TIC has no comment, fuel consumption labelling does not apply to heavy vehicles in Australia.

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?**
    TIC has no comment, fuel consumption labelling does not apply to heavy vehicles in Australia.

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?**
    TIC has no comment, fuel consumption labelling does not apply to heavy vehicles in Australia.

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?**
    TIC has no comment, fuel consumption labelling does not apply to heavy vehicles in Australia.

21. **What could governments do to improve the availability of data on fuel efficiency of used vehicles?**
    TIC has no comment, fuel consumption labelling does not apply to heavy vehicles in Australia.

22. **How could governments encourage more efficient driver behaviour?**
    TIC has no comment.

Fleet Purchasing Policy

23. **What role, if any, should the Government fleet purchasing policy play in encouraging the supply and purchase of more efficient vehicles?**
    TIC believes that all governments, Federal, State, Territory and Local must lead by example purchasing heavy vehicles that meet the latest emission standards to replace older trucks in their fleets and having fleet replacement policies that actively address Australia's aging truck park. Further, TIC calls upon all governments to ensure that tenders and contracts for new developments, infrastructure projects, etc, that they have direct and indirect influence/control/approval over exclusively call for the use of on-road heavy vehicles that

comply only to the latest truck emission standards (Euro 5 and equivalents) and for off-road vehicles and equipment to meet suitable "developed world" engine exhaust emission standards (suggested minimum should be Tier 3). Such action will ensure that older, more polluting, trucks and equipment are not employed in these government contracts and works.

Tax policy

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?

TIC firmly believes that the Fuel Tax Credit (rebate) that is offered to all companies operating heavy vehicles above 4.5t GVM should be aligned to the engine emission performance of the heavy vehicle. No rebate should be paid for trucks that comply with no emission standard (pre-1996 trucks) and ADR70/00 (Euro 1 and equivalents, 1996 to pre-2003 trucks). A 50% rebate should be paid for trucks that comply with ADR80/00 (Euro 3 and equivalents, 2003 to pre-2007 trucks) and the full rebate should be paid for ADR80/02 and ADR80/03 (Euro 4 and Euro 5 and equivalents, 2007 and later) trucks. Further, the monies saved by not paying the rebate to pre-2003 trucks and only a 50% rebate for 2003 to pre-2007 trucks would be given to truck operators who purchase a new Euro 5 or equivalent or Euro 5 Plus truck in the form of government incentives. The plan has a targeted life of five (5) years, but could be extended to ten (10) years. More details of this concept are available in TIC's National Truck Plan-V4, which the Department of Infrastructure and Regional Development (DIRD) has a copy of.

State and Territory governments could also review the potential introduction of higher road user charges for heavy vehicles that emit higher levels of noxious gas pollution and/or "low emission zones" that would restrict high emitting heavy vehicles from using specific roads, lanes, tunnels, locations, etc.

Please also refer to TIC's response to Question 4.

25. To ensure incentives do not have any unintended consequences on air quality, should incentives include noxious emissions requirements as well as CO_2 requirements, or do current noxious emissions standards sufficiently mitigate this risk?

TIC believes that incentives for heavy vehicle should specifically target noxious emissions, with the potential for additional incentives for trucks that have "cleaner than current regulated emission technologies". TIC cautions government to be careful not to be seen to be "picking winning technologies", particularly in the heavy vehicle domain where CO_2 reductions will come from many other factors and not simply engine efficiency.

Alternative Fuels and Electric Vehicles

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?

Typically truck manufacturers work closely with their existing customers, as well as potential new customers to inform them of the latest technologies and benefits of these technologies. As the road freight industry's requirements vary considerably from customer to customer, application, region of used, etc, it is difficult for TIC to recommend any specific consumer awareness measures.

Again, TIC cautions government to be careful not to be seen to be "picking winning technologies", particularly in the heavy vehicle domain where environmental benefits will come from many factors, both truck related and beyond the truck.

27. **What measures could be adopted to encourage the supply of alternative fuelled vehicles and supporting infrastructure, to reduce emissions from road transport?**
Incentives (R&D grants, taxation breaks, etc) for truck manufacturers to assist in the development of these alternative technologies. Or for early adopters (transport operators) similar financial incentives to purchase and deploy these technologies, given that the high initial investment cost of a product with an emerging technology would not necessary reflect a commercially attractive/viable return on investment.
Also, governments at all levels could be seen to "lead the way" if they were to consider exceeding minimum emissions standards wherever possible in their fleet purchasing decisions, including the adoption of alternative fuelled and powered vehicles where these demonstrably reduce noxious emissions.
Please also refer to TIC's response to Question 23.
TIC has makes no comment on infrastructure support, as current alternative technologies are too varied and supporting one, or another, could be seen as "picking winners", something that TIC believes should be avoided.

28. **How might fuel standards need to be adapted to accommodate alternative fuels?**
Currently Australian fuel standards do not exist for the following alternative fuels:
    - Bio-diesel and blends, (with the exception of B100 where there is an existing standard)
    - Compressed Natural Gas (CNG)
    - Liquefied Natural Gas (LNG)

    For the wide spread adoption of these alternative fuels in trucks, Australian fuel standards are required for these fuels specifically. Generally any alternative fuel that government, customers and heavy vehicle manufacturers may wish to use in Australia must have a recognised Australian fuel standard (which may simply be Australian Government recognition of an existing, preferably European and/or USA, fuel standard). Without suitable Australian fuel standards the quality and consistency of fuel cannot be assured, regulated and enforced, giving the truck and engine manufactures little or no confidence to bring alternatively fuelled heavy vehicles to Australia.

Vehicle Emissions Testing

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

    TIC does not support an Australian test program to assess the effectiveness of UN Regulations in reducing real-world emissions. Currently DIRD through ADR80/03 accepts the Euro 5 UN Regulation as the primary engine exhaust emission standard for trucks. ADR80/03 also accepts similar American and Japanese standards as "equivalent alternatives". Australia does not currently, nor has it ever had, an Australian unique heavy vehicle emission regulation. European, American and Japanese regulators are aware of the discrepancies and shortcomings that exist with laboratory only vehicle exhaust emission testing, with this type of testing not necessarily achieving the same result in a "real world", on-road, driving environment. These countries/regions are currently reviewing their test standards and procedures and are likely to conclude that some form of "in-service/on-road" emission test will be required to ensure suitable ongoing vehicle exhaust emission compliance. TIC supports the actions of these countries/regions who have developed the primary vehicle emission testing regimes, which Australia has currently adopted. Further, TIC believes that these investigations will highlight any need or requirement for additional testing and/or regulation. If new test standards/regulations are developed by these countries/regions, then

these and not some Australian unique test/regulation, should be considered by the Australian Government for adoption. Such future consideration must include consultation with industry and be subject to a robust Regulatory Impact Statement (RIS) assessment that shows a nett positive benefit for the Australian community.

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

TIC does not believe that such a test program is warranted or justifiable in Australia while regulators in Europe, America and Japan, who have developed the current vehicle emission testing regulations that have been adopted by the Australian Government, are reviewing their test protocols and procedures. The Australian Government should wait for these overseas reviews to be concluded and findings/recommendations released. If an emissions testing programme is considered by the government at some future date, it should only be undertaken if there is suitable evidence that shows a nett gain for the community, that is any test program should be justified by a positive RIS outcome. Any test programme should be funded from existing government and/or vehicle charges and/or taxes.

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

Changing or "improving" the current UN Regulations for vehicle emission testing would necessitate the development of "Australian unique" test requirements and/or regulation/s. TIC does not support the development of "Australian unique" regulation/s in regard to heavy vehicle emission testing for all of the reasons outlined in our response to Question 29.

In conclusion, TIC strongly believes that the Australian Government should be formulating policy and regulation that will lead to a reduction of on-road heavy vehicles that have no, or very basic engine exhaust emission standards/regulation, that is, pre-2003 trucks. Such policy must consider financial incentives to aid the take-up of the latest emission technology in new heavy vehicles. This would lead to a reduction in the average age of the Australian truck fleet with a significant reduction in the noxious gas emissions from heavy vehicles, as well as improved heavy vehicle safety. A newer truck fleet must be accompanied by revised mass and dimensional limits that would create a more productive Australian truck fleet and this would in-turn reduce heavy vehicle CO_2 emissions via freight movement efficiency gains. Finally, government regulation must be extended to all engines that emit noxious exhaust gases, this includes all currently unregulated off-road engines. On-road heavy vehicles should not have to meet world best exhaust emission practice while other engine users and industries are allowed to operate unregulated, sharing no burden for noxious gas emissions at all.

I trust that you find TIC's submission acceptable and that the issues that have been raised in this document will be considered in the review and formulation of any changes to the regulations that govern Heavy Vehicle exhaust emissions and related government policy in Australia.

Please contact the undersigned, [redacted] for any questions about this submission.

Yours faithfully,

Mark Hammond

Chief Technical Officer