



**AUSTRALIAN GOVERNMENT VEHICLE EMISSIONS DISCUSSION PAPER
AUSTRALIAN TRUCKING ASSOCIATION RESPONSE
8 APRIL 2016**

In this paper, the questions raised in the vehicle emissions discussion paper are set out in *italics*. ATA recommendations are in **bold**. The paper follows the convention that light vehicle emission standards are designated in arabic numerals (eg: Euro 6); heavy vehicle emission standards are in roman numerals (eg: Euro VI).

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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?

In the ATA's view, the following issues would need to be considered in judging whether or not to implement the Euro VI standards in Australia.

- Euro VI compliant engines have a higher cost of ownership. The ATA's advice is that the additional cost of a Euro VI vehicle could range from \$6,000-\$15,000, with more complex and expensive maintenance requirements due to the need to service the vehicle's Diesel Particulate Filter (DPF). Unless the technical amendments proposed in this paper are adopted, Euro VI vehicles could also be expected to lose 250-400 litres of fuel tankage (equivalent to 500-800 km in driving range) due to the extra DPF. Further, cab access may be compromised on bonneted vehicles.
- The introduction of Euro VI for new trucks would not address the emissions from the existing fleet. As will be discussed in the ATA's response to question 5, the maintenance of the fleet is an issue that needs to be addressed.
- The European Union is now developing its next generation of emission standards, with the EC planning to consider mandatory CO₂ emission limits for newly registered heavy vehicles once it completes short term initiatives including certifying and reporting the emissions of heavy vehicles as part of the type approval process.¹

The ATA understands that the EC is working towards introducing the new limits in 2020 and then tightening them progressively over the decade to 2030.² Given this timetable, and depending on government policy at the time, the introduction of Euro VI in Australia in 2019 or 2020 may mean that manufacturers and industry barely have time to localise Euro VI before they are asked to consider if Australia should adopt the next generation standard.

For all these reasons, the ATA recommends that the Government should not mandate Euro VI for new trucks, but should instead:

- encourage operators to purchase Euro VI trucks (ATA recommendation 3)
- put measures in place to improve the maintenance of the existing fleet (ATA recommendations 4-5)

¹ European Commission, [Strategy for reducing heavy duty vehicles' fuel consumption and CO₂ emissions](#). COM(2014) 285 final, p9.

² European Commission, [Commission staff working document: impact assessment accompanying the document: Strategy for reducing heavy-duty vehicles' fuel consumption and CO₂ emissions](#). SWD(2014) 160 final, p37.

- amend the ADRs and in-service vehicle regulations to enable the industry to rollout more fuel efficient vehicle solutions (ATA recommendation 6)
- encourage the increased use of high productivity vehicles (ATA recommendation 7)

The paper recommends that the Government should not take any further action on proposals to vary fuel tax credit rates on the basis of the age of the vehicle (ATA recommendation 8).

ATA recommendation 1

The Government should not mandate Euro VI for new trucks, but should instead focus on alternate strategies to reduce the pollution emissions from the existing fleet, enable the use of more fuel efficient vehicles and encourage the increased use of high productivity vehicles.

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

Australia's operating conditions are very different to Europe, with higher average speeds, temperatures and loads, and longer distance operations. Australia's conditions require manufacturers to develop and test special engineering solutions for the Australian market.

As a result, the ATA considers that the introduction period for any new truck emission standard should be at least three years.

ATA recommendation 2

If the Government does decide to introduce Euro VI, the introduction period should be at least three years.

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

Euro VI vehicles are able to be certified for supply and purchase in Australia under section 6.6 of ADR80/03. TNT Australia took delivery of the first Euro VI compliant trucks in Australia in 2014; the first Euro VI compliant buses have also started operating.

The number of Euro VI vehicles on Australian roads can be expected to increase over time; however, the ATA considers that technical amendments to the vehicle standards would encourage their increased use:

- there should be an increase in powered vehicle GVMs by 250 kg above the Euro IV allowance of 500 kg above the allowable single steer axle GML of 6 tonnes without the requirement for 385/70R225 or similar tyres to be used on steer axles. Twin steer vehicles should be allowed an increase of 750 kg. This increase should be available to front, rear or a combination of both axle groups.
- a combination's overall length should be increased by 250 mm, with the expectation that this would not lead to an increase in the length of load carrying elements.
- the complexity of the after treatment packages, which have been optimised for overseas applications and widths, will generally result in solutions being mounted either within the chassis rails or outboard with horizontal outlets. This is expect to require a width increase to the European 2.55 metres or result in compromised access or heat shielding.

- the removal of directional exhaust outlet requirements from ADR42/04 for NC class trucks (GVM>12 tonne). These require that the direction of discharge must not be to the left of the vehicle.

These technical amendments would also be necessary if the Government decided to mandate Euro VI.

ATA recommendation 3

To encourage the increased use of Euro VI vehicles, the Government should amend the vehicle standards to allow:

- **an increase in powered vehicle GVM**
- **an increase in overall combination length**
- **an increase in width to accommodate the after treatment packages and**
- **the removal of the directional exhaust outlet requirements.**

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

Regular maintenance is the key to ensuring that vehicles continue to meet emission standards. For example:

- the 2004 energy white paper reported that repairing poorly maintained diesel vehicles could reduce their particulate emissions by 45 per cent³
- case studies in the US mining industry of the relationship between diesel engine maintenance and exhaust emissions found that effective maintenance could reduce CO emissions by 65 per cent and PM emissions by 55 per cent.⁴
- a test of 168 diesel cars (ranging from pre-Euro to Euro 4) found that 75 per cent had emission faults. Performing maintenance on a Euro 4 vehicle with multiple induced defects reduced all its pollutant emissions except carbon monoxide; its particulate emissions were reduced by 70-80 per cent over all driving cycles.⁵

When it came into force, the *Fuel Tax Act 2006* included a powerful incentive for truck operators to maintain their vehicles.

Under the Act, businesses that operate trucks with a gross vehicle mass (GVM) of more than 4.5 tonnes on public roads can claim fuel tax credits for each litre of fuel they buy for use in those vehicles.

Under s41-25(1) of the Act, vehicles used on public roads must meet one of four environmental criteria to be eligible for the credits. These criteria are:

- (a) the vehicle was manufactured on or after 1 January 1996, the commencement date of the ADR 70/00 (Euro 1 and equivalent) emission standards for all new heavy vehicles
- (b) the vehicle is registered in an audited maintenance program accredited by the Transport Secretary. The ATA's TruckSafe program is accredited under this section; the NHVAS Maintenance Management module is not currently accredited⁶
- (c) the vehicle meets Rule 147A of the Australian Vehicle Standards Rules 1999 (ie: it has passed a DT80 in-service emissions test within the last two years)

³ Australian Government, [Securing Australia's energy future](#), 2004, p103.

⁴ McGinn, S. [The relationship between diesel engine maintenance and exhaust emissions](#), Noranda Technology Centre for the Diesel Emissions Evaluation Program (DEEP), p8.

⁵ Pillot, D et al. [Impacts of inadequate engine maintenance on diesel exhaust emissions](#), Transport Research Arena 2014, Paris.

⁶ The list of accredited maintenance programs is available [here](#).

- (d) the vehicle complies with a maintenance schedule endorsed by the Transport Secretary.
The endorsed maintenance schedule is not onerous.⁷

When the Act came into force, 61 per cent of the trucks registered in Australia were manufactured before 1996, and therefore had to meet one of criteria (b)-(d) to be eligible.⁸

Table 1 sets out the current age profile of Australia's truck fleet. 33 per cent of the trucks in service were manufactured before 1996. As a result, the majority of the trucks in Australia do not have to meet any maintenance requirement or test to be eligible to receive fuel tax credits.

Table 1: Age profile of the Australian truck fleet with GVM>4.5t

Model year	Standard ^a	2016 fleet	
		Number	Per cent
to 1975	No standards in place	23,740	5
1976-1996	Smoke only from 1-Jul-76 (ADR30, 30/00 and 30/01)	135,846	28
1996-2002	ADR70/00 (Euro 1, US EPA 91, Japan 94)	74,831	15
2003-2007	ADR80/00 (Euro III, US EPA 98)	103,628	21
2008 ^b -2010	ADR80/02 (Euro IV, US EPA 04, Japan NLT05)	58,181	12
2011-2015	ADR80/03 (Euro V, US EPA 07, Japan NLT05)	88,141	18
Total		484,367	100

(a) based on the date the ADR came into force for all new trucks

(b) 1 January 2008 has been used as the breakpoint between ADR80/00 and ADR80/02

Figures may not add to totals due to rounding

Source: Based on ARTSA analysis of Austroads NEVDIS supplied data. Used with ARTSA permission.

Given the importance of maintenance to achieving emission standards, it is clearly necessary to update the *Fuel Tax Act* environmental criteria.

In developing this submission, the ATA began by looking at the option of changing the 1 January 1996 threshold to 1 January 2008, the commencement date for ADR80/02 for all new trucks. This option has a certain plausibility, for it would bring the proportion of trucks within the scope of the maintenance/test criteria back to about 2006 levels (69 per cent versus 61 per cent in 2006).

After consideration, however, the ATA decided against recommending this approach, because a heavy vehicle's maintenance requirements depend on its duty cycle, not its age. The Pillot research found no correlation between the age of the diesel vehicles in the sample tested and the number of emission defects.⁹

Instead of changing the 1 January 1996 threshold, the ATA proposes that it should be removed entirely. Every heavy diesel vehicle used on public roads should be required to meet one of the three maintenance/test criteria to be eligible for fuel tax credits.

ATA recommendation 4

Section 41-25(1)(a) of the Fuel Tax Act 2006 should be removed. Every heavy diesel vehicle used on public roads should be required to meet one of the three maintenance/test criteria in the Act to be eligible for fuel tax credits.

⁷ Department of Transport and Regional Services, [Fuel tax credit for heavy diesel vehicles: guidelines for satisfying environmental criteria](#), 2006, pp7-9.

⁸ Based on Australian Bureau of Statistics, [Motor vehicle census](#), (ABS Cat 9309.0), 31 March 2006, table 10.

⁹ Pillot, 2014.

ATA recommendation 5

The Australian Government should press the National Heavy Vehicle Regulator to seek accreditation for the NHVAS Maintenance Management module under s41-25(1)(b) of the Fuel Tax Act 2006.

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

The discussion paper cites 2011 modelling by ClimateWorks showing that some of the most cost effective abatement opportunities available across all major emitting sectors are from improving the efficiency of large articulated trucks.¹⁰

The ATA has long argued that the efficiency gains identified in the modelling will not achieve themselves.¹¹ They can only be achieved through changes in government regulation, including the design rules and vehicle standards regulations.

ATA recommendation 6

The Government should review the ADRs and in-service vehicle standards regulations that restrict the rollout of more fuel efficient solutions for industry.

Beyond vehicle efficiency improvements, the best way trucking businesses can reduce their fuel consumption is to use high productivity vehicles on more routes. Table 2 summarises the effectiveness of switching to HPVs as a way of reducing emissions.

Table 2: Emissions benefits of high productivity vehicles

Combination	Trips required per 1000 tonnes	Fuel required to deliver 1000 tonnes 1000 km and return (litres)	Emissions index
3 axle rigid	77	43,120	109
6 axle semi-trailer	42	39,480	100
9 axle B-double	26	32,240	82
Type 1 road train (A-double)	21	28,560	72
12 axle B-triple	20	27,200	69
Type 2 road train (A-triple)	14	22,400	57

Source: ATA and Barkwood Consulting, Truck impact chart, 2nd edition, in preparation.

The ability of HPVs to access the road network is predominately regulated by the states and the NHVR; however, the Australian Government's road reform program could have a significant impact on the industry's level of access and fuel efficiency.

The Government has announced it will work through COAG to develop steps to transition to independent heavy vehicle price regulation by 2017-18.¹²

In the ATA's view, the introduction of cost-reflective road pricing must include the establishment of an independent economic regulator to set fair, enforceable prices for road users. In addition to regulating pricing, the road reform process would need to result in regulated road standards,

¹⁰ Australian Government, p6.

¹¹ For example, see ATA, [Emissions Reduction Fund submission](#), 2013, and [Energy Green Paper submission](#), 2014.

¹² Fletcher, P. (Minister for Major Projects, Territories and Local Government), *The Australian Government's response to the Harper Review's recommendations on road pricing*, 2 December 2015.

because a price regulated monopoly provider of roads would have an economic incentive to underprovide on service quality.¹³

Drawing on a comprehensive report from PricewaterhouseCoopers, the ATA has previously argued that the Government should define a three tier road freight network, with engineering and access standards set for each tier.¹⁴

The ATA continues to hold this view: any regulated standards should define mandatory levels of HPV access as well as engineering standards.

ATA recommendation 7

The Government's road reform program should include the establishment of an independent economic regulator with the ability to regulate road standards as well as prices. The regulated road standards should include standards about HPV access.

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?

The ATA is aware of a proposal to remove or reduce the eligibility of older vehicles for fuel tax credits, regardless of their compliance with the current maintenance requirements or the requirements proposed in ATA recommendation 4.

The revenue saved would be used to fund investment allowances to encourage the purchase of new trucks, with a smaller allowance for the purchase of late model second hand trucks.

The proposal is said to have multiple benefits, including a reduction in vehicle emissions and an increase in truck sales.

As the peak body representing the businesses that would be expected to pay the extra fuel tax, the ATA does not support this proposal, because:

- Altering fuel tax credit rates is an inefficient way to address vehicle emissions. The vehicle emissions regulated by the ADRs are overwhelmingly an urban issue. In 2005, for example, the BTRE concluded that 85 per cent of the cost of motor vehicle emissions related mortality and morbidity was incurred in capital cities.¹⁵

Altering fuel tax credit rates as a mechanism for encouraging operators to purchase more recent vehicles would impose large costs across the whole of Australia, including in rural and remote areas where the major sources of particulate pollution are bushfires, mining and agriculture, and windblown particles – not vehicle operations.¹⁶

- Trucking businesses set their freight rates on the basis that they receive fuel tax credits for every litre of fuel they use. Under the proposal, a trucking business operating older vehicles would simply not be competitive.

The proponents of tiered fuel tax credit rates would no doubt argue that an operator with older trucks could avoid paying the extra tax by taking advantage of the investment allowances and renewing its fleet. But small trucking businesses have a limited capacity to invest in new equipment, even with an investment allowance, and the cost of paying for new assets before they are needed is a tax of its own.

¹³ See Harvey, M. "Commercial road supply with incentive regulation," in *International Journal of Sustainable Transportation*, 9:4, pp241-253.

¹⁴ PricewaterhouseCoopers, [A future strategy for road supply and charging in Australia](#). Report to the ATA, March 2013, pp31-32.

¹⁵ BTRE (2005) [Health impacts of transport emissions in Australia: economic costs](#). Working paper 63, p100.

¹⁶ BITRE, p39.

- The proposal is inconsistent with broader government policy, which seeks to reduce the payments-to-GDP ratio¹⁷ and support small business to become more profitable and competitive.¹⁸

ATA recommendation 8

The Government should not take any further action on proposals to vary fuel tax credit rates on the basis of the age of the vehicle.

¹⁷ Australian Government, [Budget strategy and outlook: budget paper no. 1 2015-16](#), 12 May 2015, p3-4.

¹⁸ Australian Government, [Growing jobs and small business, 2015-16 budget supplement](#), 12 May 2015, p2