



Modernising the Australian Truck Fleet Budget Submission 2017/18

TODAY'S TRUCKS



MODERNISING THE AUSTRALIAN TRUCK FLEET BUDGET SUBMISSION KEY POINTS

1. The Truck Industry Council's Budget Submission calls for the modernisation of the Australian Truck Fleet and promotes four key outcomes:
 - A younger Australian truck fleet;
 - A more energy productive Australian truck fleet;
 - A safer Australian truck fleet; and
 - A greener, cleaner, healthier Australian truck fleet.
2. The average age of the Australian Truck Fleet in 2016 was 14.8 years with recent trends confirming the age of the fleet is increasing. According to the ABS January 2016 Motor Vehicle Census, almost forty-five percent (44.7%) of the nation's truck fleet was manufactured before 2003 when little, or no, exhaust emission regulation existed. This figure consists of 127,414 pre-1996 trucks (no emission standards) representing 28.1% and 75,386 trucks, or 16.6% being trucks manufactured between 1996 to pre-2003 (elementary emission control systems employed).
3. The primary aim of this submission is to accelerate the adoption of new ADR 80/03 diesel only trucks and the use of more new alternatively fuelled and powered (ADR 80/03 PLUS) trucks into the Australian market.
4. A secondary aim is to have government consider providing an incentive to encourage the purchase of used ADR 80/02 and ADR 80/03 emission standard compliant trucks.
5. By doing so the Australian population will benefit through improved health outcomes (reduced noxious air pollutants), improved environmental outcomes (greenhouse gas emission savings – up to 25 per cent for alternatively fuelled or powered vehicles), and a modern productive truck fleet that can take full advantage of the nation's record investment in road infrastructure.
6. In addition for every new greener, cleaner truck replacing an older truck, that truck is designed to be a quieter truck and a safer truck than earlier models given the significant technological advances that are built into modern truck design.
7. The Truck Industry Council believes the following initiatives will encourage the modernisation of the Australian truck fleet:

Federal Government Direct Incentives:

- To make the purchase of a new ADR 80/03 diesel-only truck more appealing to pre ADR 70/00 (pre 1996 approx.) truck owners, consideration should be given to providing a thirty (30) per cent investment allowance for such purchases, effective for all new models sold from July 2017.
- To make the purchase of new alternatively fuelled and powered (ADR 80/03 PLUS) trucks more appealing to pre ADR 70/00 (pre 1996 approx.) truck owners, consideration should be given to providing a fifty (50) per cent investment allowance for such purchases, effective for all new models sold from July 2017.
- For ADR 70/00 and later (post 1996) truck owners to offset the costs associated with the purchase of a new ADR 80/03 diesel-only truck, consideration should be given to providing a fifteen (15) per cent investment allowance for such vehicles that comply, effective for all new models sold from July 2017.
- For ADR 70/00 and later (post 1996) truck owners to offset the additional costs associated with the purchase of new alternatively fuelled and powered (ADR 80/03 PLUS) trucks, consideration should be given to providing a twenty five (25) per cent investment allowance for such vehicles that comply, effective for all new models sold from July 2017.

Complementary and/or Alternative Incentives:

- COAG to work towards measures to offset the operator mass losses of a new truck (higher TARE weight due to mandated emission and safety devices fitted to new trucks) by allowing higher axle masses for new ADR 80/03; and 80/03 Plus trucks.

- COAG to work towards reducing uniformly federal and state taxes (registration charges and stamp duty) for low emission trucks.
 - COAG to work towards a determination where the Road User Charge for operators is based upon a Mass Distance Location charge for the vehicle/freight movement and an Environmental and Safety levy for the truck.
8. The Truck Industry Council believes the following piece of work is required for government and industry to move forward with accountable financial modelling of road transport energy productivity:
- The Federal Government (Department of Environment) to provide funding for the development of a Government and industry accepted metric to quantify and measure energy productivity in the road freight sector

MODERNISING THE AUSTRALIAN TRUCK FLEET

1. Problem

Australia has a very old truck fleet:

- 13.9 years average age (vehicles above 3.5t GVM – ABS Motor Vehicle Census Jan 2016); and
- 14.8 years average age (vehicles above 4.5t GVM – ABS Motor Vehicle Census Jan 2016).

Almost forty-five percent (44.7%) of the nation's truck fleet was manufactured before 2003 when basic, or no, exhaust emission regulation existed. This figure consists of 127,414 pre-1996 trucks (no emission standards) representing 28.1% and 75,386 trucks, or 16.6% being trucks manufactured between 1996 to pre-2003 (elementary emission control systems employed).

For comparison purposes Appendix A details the average of trucks above 3.5t GVM across various countries.

Understanding “why our truck fleet is so old” is key to modernising the fleet, with the benefits of making it safer for all road users, more energy productive for industry, and much cleaner and more environmentally friendly for all Australians. An older truck fleet cannot achieve these benefits.

The reasons for Australia's aging truck park include:

1. Freight efficiencies and a company's “bottom line” profitability.

New trucks are heavier than old trucks, typically a post 2008 truck is 300kg to 600kg heavier than a pre-2003 truck due to the safety and environmental standards (Australian Design Rules – ADR's) that the new truck is required to meet. This simply means that a newer truck cannot carry as much payload as an old truck, this makes the new truck less productive and reduces its “bottom line” profitability for an operator. Losses in this area more than offset any increased profitability that are gained from the better fuel efficiency of a new truck. Some additional mass has been given by the States in Australia for some post-2008 trucks, however typically a new truck is less productive due to its increased TARE mass. The “bottom line” profitability of an alternatively powered or low carbon emitting truck is substantially worse than that of an existing diesel powered truck. The additional weight due to batteries, or storage tanks (natural gas, hydrogen, hydraulic fluid, etc) further reduces the effective payload of these alternatively powered and low carbon emitting trucks, and coupled with considerably higher initial purchase price, makes for a less convincing business case for an operator.

2. No second hand market exists for Australia's old trucks.

In Western Europe older trucks are sold into Eastern Europe and Africa. In the USA and Canada older trucks are sold into South America, and in Japan older trucks are sold into other less developed countries in the Asia Pacific region. Australia has no viable retirement plan (dumping ground) for older trucks. The low scrap value for such vehicles is such that the operator finds it more economically viable to run trucks for much longer in Australia.

3. “Fit it up, Keep it going” culture

A “culture” for the continued replacement of old trucks and hence the updating of Australia's truck fleet simply does not exist in Australia. While the current culture of “fix it up”, “keep it going” continues, the take-up of new more efficient diesel trucks and new low emission trucks, will remain very poor. This current heavy vehicle purchasing “culture”, or “buying behaviour”, must be addressed by any energy productivity (CO₂ reducing) incentive scheme introduced by the Australian government.

4. Poor take up rate of new technologies (0.1% of total new truck sales).

Globally the uptake of alternatively powered and fuelled vehicles, cars and trucks, runs at approximately 2 percent of new vehicle sales each year. There are some stand out performers such as the Netherlands who are well above this norm (NSW-EPA December 2016). In Australia sales of light passenger vehicles using these technologies runs at about 1 percent per year, while in the heavy vehicle domain TIC's T-Mark new truck sales data shows the five year average, 2011 to 2015, sales of alternatively powered and fuelled trucks is just 0.3 percent per year. This number plummeted to just 0.1 percent of new truck sales in 2016. At year end 31st December 2016 just 32 alternatively powered or fuelled trucks had been sold across Australia. The complete lack of incentives by Australian governments for the uptake of low carbon emitting vehicles is a major inhibitor to the uptake of such vehicles in this country. Globally the uptake of low carbon emitting vehicles is generally proportional to the incentives put in place, or the disincentives put in place by governments for high carbon emitting vehicles (for example, carbon tax on certain fuel types, emission zones that exclude or penalise high carbon emitting vehicles within certain geographical locations, increased registration charges for older vehicles).

To overcome the inhibitors to Australia having a more modern truck fleet the Truck Industry Council (TIC) calls upon the Federal Government to provide incentives to renew Australia's truck fleet.

A good (or actually poor) example of this is the Federal Government's Emission Reduction Fund (ERF). A scheme that works well for high carbon intensity emitters, but a scheme that is not suitable for the road transport sector. There has only been one successful ERF "bid" for a road transport operator since the ERF commenced a few years ago. Although the details of the successful bid are governed by confidentiality agreements, media information released by the successful company, a refrigeration freight group, indicates that most of their planned CO₂ reduction will actually come from "modal switching", moving freight from trucks to rail and while this is a win for CO₂ emissions, it is hardly a win for reducing CO₂ emissions for trucks. Although the road transport sector is collectively a large CO₂ emitter, individual vehicle CO₂ improvements will be quite small and incentive schemes that work for industries such as power generation WON'T work for road transport.

2. AIM

The primary aim of this submission is to modernise the Australian truck fleet by accelerating the introduction of the latest emission trucks and actively promote the take up of advanced more energy efficient technologies.

This submission identifies initiatives the Government can pursue to improve the health of Australians, particularly in urban areas, by reducing carbon dioxide and noxious emissions, while overcoming barriers that reduce the country's ability to modernise the nation's truck fleet. Initiatives to reduce heavy vehicle fatalities by the take up of safer vehicle technologies; and to improve the efficiency and effectiveness of the nation's distribution channels thus enabling the Federal Government's record road infrastructure spend to be realised are also presented in this submission.

With greenhouse gas emissions from the freight transport sector forecasted to grow strongly to 2040 (NTC Report 2016) the submission aims to reduce emission levels from trucks over the longer term and to achieve a reduction in the levels of emissions that are known to be harmful to public health. By achieving the objective of a greener, cleaner truck fleet the nation benefits by having a more energy productive distribution channel and a healthier Australian truck fleet that also markets the latest safety technologies making road travel safer for all users.

3. 2017 Industry Scope

The Truck Industry Council is an independent, not-for-profit peak industry organisation representing the united views of truck manufacturers, truck importers, heavy vehicle engine companies and major component suppliers to the Federal Government, State and Territory Governments, Local Government, Industry and Business associations and the general public.

Membership of TIC is inclusive of all truck manufacturers and importers/distributors in Australia and currently consists of:

- 9 truck manufacturers/distributors representing 17 brands
- 3 engine and component suppliers.

In 2017 the truck industry is designing, engineering, testing, developing, and manufacturing trucks at three major locations in Australia without Federal Government assistance. The companies involved, and their locations, are:

- VOLVO GROUP AUSTRALIA, manufacturing Volvo and Mack brand trucks at Wacol, Queensland;
- PACCAR AUSTRALIA, manufacturing Kenworth trucks at Bayswater, Victoria;
- IVECO TRUCKS AUSTRALIA, manufacturing IVECO trucks at Dandenong, Victoria.

These three plants are necessary to meet the specific requirements of Australian operators who work in conditions unique to anywhere else in the world and with truck importers ensure the efficient transportation of the nation's growing freight task. The three plants combined produce about 50% of all heavy duty trucks sold in Australia,¹ and more than 80% of the heavy haulage vehicles used in Australia's mining industry. In addition, the majority of the road trains that service outback Australia are also designed and built in Australia.

The Australian new truck market is a \$3.5B industry with ancillary activities estimated to have an economic value of a further \$6B. For the past three years, 2014, 2015 and 2016 yearly sales have seen little growth with 30,804 vehicles, 32,003 vehicles and 32,964 vehicles sold respectively. Compared to the pre-GFC year of 2007 where 38,131 vehicles were sold, sales are still down by more than fifteen (15) per cent or down over 5,000 units on the 2007 Australian market peak. On current trends forecasts suggests that sales will not return to pre GFC figures until 2025 at the earliest resulting in an even older average age for the Australian truck fleet. This is not an enviable position for Australia to find itself in.

Truck manufacturers in Australia are major employers of skilled and semi-skilled people (trade, engineering, electronic and information technology) with total employment of approximately 36,000 employed in disciplines such as:

• Local Truck Manufacturing/Assembly	4,010
• Importing and Distribution of Trucks	1,300
• Suppliers/Dealers (Sales, Service and Spare Parts)	27,142
• Equipment and Body Builders (Trailer, Tanker, Tippers and Secondary Manufacturers)	3,610

TIC's local truck manufacturers, as well as truck importers and engine companies are well advanced in the design and manufacture of alternatively fuelled trucks, particularly Liquefied Natural Gas (LNG) for heavy duty long distance transport, and Compressed Natural Gas (CNG) trucks mainly for urban distribution work. Equally TIC members are producing diesel/electric and diesel/hydraulic hybrid trucks that are available today for the Australian market with the immediate benefit of reducing noise levels and consumption rates of

¹ Source: TIC T-Mark Truck Market historical sales data for full calendar year 2016.

diesel. In 2016, four (4) TIC members were marketing selected truck models in Australia that met Euro 6, or equivalent, exhaust emission regulations, well before the mandating of such standards by the Federal Government. At least another two (2) TIC members will launch Australian Euro 6 models in 2017. In addition the first full scale market evaluation of light duty “plug-in” electric trucks in Australia by a TIC member company will commence in 2017. These alternatively fuelled and/or powered trucks reduce CO₂ emissions.

At a time when there is continuing concern over the adverse health effects to Australians from vehicular pollution and significant emphasis on the reduction of greenhouse gas and other noxious emissions the more efficient, and alternatively fuelled and powered, and higher emission standard (Euro 6) trucks that TIC members are bringing to market today should represent a major step forward in improving the health of all Australians while reducing Australia’s road transport carbon footprint and noxious emissions. However, the reality is that the take-up rate of these more advanced trucks in Australia is poor.

4. Key Budget Considerations

4.1 Increasing Energy Productivity in Australia’s Truck Fleet (and reducing CO₂ emissions)

There is no one specific “silver bullet” that can be used to reduce Australia’s road freight CO₂ emissions, but rather a series of methods will need to be employed, that when combined will result in reduced CO₂ emissions for a given freight task. The task of reducing CO₂ emissions from the road freight sector by increasing the efficiency of how freight is moved can best be termed as “increased energy productivity”. Such energy productivity/CO₂ reducing methods include:

- Moving freight on fewer, higher productivity, vehicles. B-Triples, HML, PBS and increased axle masses for trucks are examples.
- Moving freight during periods of lower traffic congestion/density, and/or creating lower traffic congestion/density to enable freight to be delivered faster and more efficiently. Night time deliveries, consolidating freight and connected intelligent transport systems (C-ITS) are examples.
- Improving the driveline efficiency of trucks and improving the aerodynamic efficiency of both trucks and trailers. The uptake of diesel truck driveline and aerodynamic technologies from overseas countries that are, or will be, mandating fuel efficiency standards for heavy vehicles, the uptake of hybrid and alternatively fuel and powered trucks and increased use of aerodynamic devices on trailers are examples.

Energy productivity has been expressed in this submission as a dollar value for Tonnes of CO₂ saved against Business As Usual (BAU). This measure is used as there is currently no specific metric that is universally accepted that captures the dollar value for energy productivity. Australian road freight is quite complex, comprising of, for example, a mix of high value items such as consumer electronics or pharmaceutical products through to low value freight such as spoil from a construction site or refuse. Some freight movements are best measured in tonnes per km, while this measurement is not suitable for light “volume” freight where cubic meters per km is a more appropriate measure.

As a key recommendation of this submission TIC believes that a suitable metric to quantify and measure energy productivity in the road freight sector needs to be developed. This metric being one that is universally accepted by both government and industry. For this issue to be progressed, TIC is offering to develop a suitable energy productivity metric, with the assistance of key industry organisations and with liaison with the Federal Government. Such a project would require funding from government.

Moving Australia’s current (and future) freight task using fewer (higher efficiency) trucks, using a newer (younger) truck fleet and during periods of less traffic congestion/density will lead to increased energy productivity, operator direct savings such as reduced fuel use and in turn reduced CO₂ emissions. It will also have positive benefits for other road users and the nation’s road safety and health objectives. These road

safety and public health benefits will be explored and explained below in Points 4.3 and 4.4 respectively. One example that is detailed in this section of increased energy productivity, the increased use of new PBS Vehicles has been modelled by TIC and expressed as reduced CO₂ emitted. As too are operator direct savings.

Ensuring that the improved national truck access regime for new higher productivity vehicles (PBS) continues will allow for a considerable gain in productivity including improvements to the efficiency and effectiveness of the nation’s road distribution channels. This productivity benefit arises from an overall saving in kilometres travelled that comes from the adoption of these vehicles with their higher capacity payloads (mass and/or volume). TIC’s modelling highlights that kilometre savings are significant and range from 1.73 to 2.77 billion kilometres. Fuel savings through improved productivity would conservatively generate CO₂ savings from 1.62 million tonnes to 2.54 million tonnes.

As a condition of their approval process PBS Vehicles are also safer and more environmentally friendly. Table 1 presents the findings for the median scenario option for the proposed TIC incentive scheme over 5 years and the ongoing benefits for the following three years. A value of \$15.86 per tonne of CO₂ has been used to convert CO₂ savings to a dollar value (ERF 2015).

Please note that the CO₂ and Operator Direct Savings (Ops) summarised in Table 1 and Appendix B only show the potential savings as a result of an increased uptake of new PBS vehicles (TIC’s modelling thus far). The total gains in energy productivity are potentially much greater, possibly ten times, or more, than detailed below. Moving freight during periods of lower traffic congestion, increased engine and driveline efficiencies of a newer truck fleet, alternatively fuelled and powered trucks and increased axles masses for new trucks to offset increased TARE weight have not been modelled by TIC, primarily because there is no Government and industry accepted metric to quantify and measure energy productivity in the road freight sector. The lack of a suitable energy productivity metric for road transport significantly hampers the development and review of scenarios that could be used to determine the most beneficial and practical methods to increase Australia’s road transport efficiency and reduce CO₂ emissions.

Table 1 Impact Assumptions for all Scenarios

	Year	Medium (\$ Million)				Total
		Safety	Health	CO ₂	Ops	
	2017	0.0	0.0	0.0	0.0	0.0
National Truck Plan (5 Years)	2018	12.0	107.1	3.8	296.8	419.7
	2019	12.3	218.2	3.9	306.9	541.3
	2020	12.7	333.8	4.0	317.3	667.8
	2021	13.1	446.8	4.2	328.1	792.2
	2022	13.5	430.3	4.3	339.3	787.4
	Sub Total		63.6	1536.3	20.2	1588.4
Ongoing Benefits	2023	13.9	349.4	4.5	350.8	718.6
	2024	14.3	271.3	4.6	362.7	652.9
	2025	14.7	196.2	4.8	375.0	590.7
	Total		106.5	2353.2	34.1	2676.9

4.2 OPERATOR DIRECT SAVINGS (Ops)

Appendix B provides a more complete analysis of the productivity benefits (low, medium and high range scenarios).

The modelling undertaken by TIC and summarised in Table 1 under the headings of *Safety*, *CO₂* and *Ops*, shows the operational cost savings of newer high productivity vehicles will deliver some 95 per cent of the

total savings involving operational, fatality and CO₂ benefits. The fleet mix, from which the operation benefits are generated, involves Rigid Trucks through to B-Triples, which are Level-3 vehicles. The estimates are somewhat conservative as vehicle combinations such as BAB Quads and other Level-4 vehicles have not been modelled in this analysis.

Over the period 2017 to 2025, under the three scenarios summarised in Appendix B there would be a benefits range from \$3.54 billion dollars for the low scenario adoption of new high productivity vehicle technology, to \$5.17 billion dollars for the medium scenario, and \$6.78 billion dollars for the high scenario. These figures also include avoided health costs. In all cases it is assumed that a national network for Level 3 vehicles exists and connects capital cities and major regional cities.

4.3 SAFER TRUCKS

The safety of trucks remains a major concern for the public and government authorities.

Truck manufacturers are committed to building safer trucks making road travel safer for all users. Advanced technologies are now available to assist truck drivers. For example, Lane Assist Systems keep trucks in a chosen lane and preventing drifting across lanes while adaptive cruise control can significantly reduce rear-end collisions, when combined with advanced emergency braking systems. Electronic Stability Control (ESC) systems reduce the possibility of skidding, jack-knifing, or overturning, whilst Electronic Braking Systems (EBS) enhance driving safety in diverse conditions. Front Underrun Protection Systems (FUPS) prevents the occupants of a car from becoming trapped underneath the truck and will ensure that the safety features of the car are correctly deployed. These technologies are available now in many truck models but due to cost the uptake is low.

TIC's analysis shows the total number of lives saved ranges from 28.1 to 44.4 over the eight year period with a medium scenario expectation of 37.6 lives saved. This is 4 lives per annum over the analysis period. In terms of dollar value over the period 2017 to 2025 and using the Australian Statistical Life cost of \$2.83 million, under the three scenarios presented there would be a benefits range from \$79.6 million dollars for the low scenario, to \$106.5 million dollars for the medium scenario, and \$125.6 million dollars for the high scenario.

A decision to modernise the nation's truck fleet by means of an investment allowance program means that safer trucks employing the latest advanced technologies will be operating on the country's road network.

4.4 GREENER CLEANER TRUCKS - IMPROVING THE HEALTH OF ALL AUSTRALIANS

The Truck Industry Council has conducted research into the public's perception of trucks. One conclusion from the research was that issues surrounding the role of trucks, current safety standards and environmental impacts are of significant public interest. Of particular interest to policy makers is the conclusion that there was substantial public support for the implementation of stricter standards as they relate to trucks especially in built up areas. Almost sixty (60) per cent of respondents believe that all trucks should have to comply with strict environmental standards before being allowed into built up areas while seventy-five (75) per cent believe that a minimum standard of safety features should exist on every truck that operates within cities.

From this research it is clear that the public want to see greener, cleaner and quieter trucks operating in urban areas. Survey respondents fully accepted the need for trucks on our roads, but are no longer willing to accept trucks emitting black smoke or emitting excessive noise. It should be noted that hybrid trucks, due to their frequent use of electric power can operate in a silent mode and trucks powered by natural gas produce significantly less engine noise than those powered by an equivalent diesel engine, reducing further the impact of noise on the community. Truck manufacturers, in conjunction with Federal and State Governments have, over the past 20 years implemented a program of reducing both exhaust emission levels and noise levels. The below table shows the improvement made in reducing exhaust emissions since 1996, and the current levels (ADR 80/03) introduced in 2010-11.

Table 3 - Reductions in Exhaust Emissions

YEAR	ADR	PM	NOx	CO
Pre 1996	n/a	1.0	14.5	7.0
1996 – Pre 2003	ADR 70/00	0.4	7.6	4.5
2003 – Pre 2008	ADR 80/00	0.1	5.0	2.0
2008 – Pre 2011	ADR 80/02	0.02	3.5	1.6
2011 -	ADR 80/03	0.02	2.0	1.6

The above table shows the exhaust emission levels in g/kWh (grams per kilowatt hour). The data for pre 1996 vehicles is an average, and in many cases would be much higher. The data for other years assumes that the engine is built to the applicable “EURO” standard, and not one of the acceptable equivalent standards from the USA or Japan.

Whilst the above improvements are significant (it would take SIXTY of today’s trucks to emit the PM emissions of ONE pre 1996 truck) Australia has not achieved the emission reductions that were forecasted by Government due to the poor take up of new trucks by Australian operators, with almost 45 per cent of the truck fleet meeting no or elementary engine exhaust emission standards.

Research suggests a link between common air pollutants and adverse health impacts on human beings. The manifestations of these health effects take the form of mild respiratory difficulties through to the onset of chronic asthma, increased susceptibility to infections, impaired lung function, cardiovascular conditions, loss in the quality of life (morbidity) and premature death (mortality). People with existing asthma are prone to the worsening of their condition. Further, statistics support the claim that the adverse effects of air pollutants result in increased hospital admissions, school and kindergarten absences and the increased use of asthma medications. All age profiles are represented in the cohort of people affected but in particular children and the elderly are more prone.

The existing literature shows that long term exposures have more adverse health effects and hence higher cost implications for the community (BTRE 2005). In 2005, the Bureau of Transport and Regional Economics reported that the cost of vehicle air pollution on life and illness was \$2.7 Billion (central estimate). The Bureau released figures suggesting that in the year 2000 premature deaths from vehicle exhaust pollution were between 900 and 2000 people. ‘More than 85 per cent of these early deaths would have occurred in the capital cities where over 80 per cent of Australians live’ (BTRE 2005). A further 900 to 4500 morbidity cases were estimated. The report also stated that vehicle exhaust emissions contributed between 1400 and 2000 asthma attacks in Australia each year. A more recent study has not been commissioned by the Bureau at this stage.

While trucks represent less than three (3) per cent of new vehicle sales by total units sold, they consume significantly more fuel per unit than other vehicles. TIC has identified that a significant proportion of older model trucks (i.e. pre 1996) are working in urban areas, where health effects resulting from exhaust emissions are most severe. TIC has estimated that an effective incentive package which accelerates the renewal rate of the truck fleet would save \$1.54B over 5 years and \$2.35B over eight years in health costs when compared with a “Business as Usual” approach.

Supporting the relationship between air pollution and adverse health, the Health Effects Institute (US based) released in January 2010 a landmark study into the health risks associated with exposure to traffic finding that:

- Air pollution does impact on human health and provides evidence that initiatives aimed at reducing pollution levels should be supported;
- Children living within 500 metres of a major road or freeway were at greater risk of developing asthma;
- Those children already with asthma were likely to have their condition exacerbated;
- Across all other age groups new asthma cases were likely to be triggered; and
- The adult population faced greater likelihood of lung and heart-related illness.

In Victoria alone hundreds of thousands of Victorians live within 500 metres of major roads (Gough D. 2010, www.theage.com.au) and according to the findings of the Health Effects Institute study are at a greater risk of developing adverse health conditions.

There are two main forms of air pollution that are of concern in capital cities. Emissions from vehicles, for example, particulate matter (PM or black soot) are known triggers for the onset of asthma, and can cause cancer and cardiovascular disease. Further, the World Health Organisation declared that diesel exhaust emissions are a “known carcinogen” in July 2012, with a special emphasis on the PM produced. Given that new model trucks complying with ADR 80/03 produce 98% less PM than a pre-1996 truck, it is in the government’s interest to encourage the modernisation of the Australian truck fleet. Equally Nitrogen Oxides (NOx) have been shown to have a causal relationship with serious health problems such as asthma, respiratory disease and reduced lung function in children (Blackburn R., *Something in the Air*, 2007).

A major cause of air pollution in urban areas is motor vehicle exhaust emissions. Transport is the third largest contributor (14 per cent) of greenhouse gas emission in Australia. Road transport accounts for about 90 per cent of transport emissions, the road freight task component of this being 39 per cent with predictions that the freight transport task is expected to grow 26 per cent between 2016 and 2026. The BTRE (2005) notes in its analysis that the long life-cycle of commercial vehicles dampens the uptake of new technology vehicles, including the latest model diesel engines and predicts low ‘penetration rates for hybrid fuel vehicles’ (p. 46) to the year 2020. In summary, five (5) per cent of greenhouse gas emissions originate from trucks, twenty eight (28) per cent of which are pre 1996 model trucks with no emission controls.

The Truck Industry Council calls upon the Federal Government to develop policies designed to reduce the adverse health impacts that arise from an old Australian truck fleet.

5 POLICY OPTIONS

Options to modernise the nation’s truck fleet making significant health, environmental, safety and productivity gains include:

- Accelerate the introduction of greener, cleaner technologies by encouraging the purchase of low emission trucks through the provision of
 - (1) a thirty (30) per cent investment allowance that offsets the costs associated with the purchase of a new ADR 80/03 diesel only truck and a fifty (50) per cent investment allowance that offsets the costs associated with the purchase of a new alternatively fuelled and powered ADR 80/03 PLUS trucks for pre ADR 70/00 (i.e. pre 1996 approx.) truck owners effective July 2017 or
 - (2) a fifteen (15) per cent investment allowance that offsets the costs associated with the purchase of a new ADR 80/03 diesel only truck and a twenty-five (25) per cent investment allowance that offsets the costs associated with the purchase of a new alternatively fuelled and powered ADR 80/03 PLUS trucks for ADR 70/00 and later (post 1996 operators) effective July 2017.
- Acknowledging that some operators will not be in a position to purchase a new vehicle, the government could consider providing a fifteen (15) per cent investment allowance towards the purchase of used ADR 80/02 and ADR 80/03 emissions controlled trucks.
- COAG to work towards providing green vehicle rebates and reducing uniformly federal and state taxes (registration charges and stamp duty) for low emission trucks.
- COAG to work towards measures to offset the operator mass losses of a new truck (higher TARE weight due to mandated emission and safety devices fitted to new trucks) by allowing higher axle masses for new ADR 80/03; and 80/03 Plus trucks.
- The Department of Environment to provide funding for the development of a Government and industry accepted metric to quantify and measure energy productivity in the road freight sector.

- COAG to work towards a determination where the Road User Charge for operators is based upon a Mass Distance Location charge for the vehicle/freight movement and an Environmental and Safety levy for the truck.
- Enhance R&D funding to truck manufacturers and engine manufacturers to develop a world class alternative fuel and powered truck manufacturing industry for domestic use given Australia's competitive strength as a source of abundant natural gas and noting the nation's unique transport requirements.

6. CONCLUSION

Appropriate consideration of these policy options will increase the potential for the modernisation of the Australian truck fleet with the subsequent energy productivity improvements, and health, environmental, and safety benefits for all Australians. The benefits of implementing this modernisation program are identified through the avoided health costs associated with noxious emissions (\$2353.2 Million Median), cost savings to the community through avoided fatalities due to safer and more productive trucks (\$106.5 Million Median), reduced carbon dioxide emissions due to higher productivity rates of modern trucks (\$34.1 Million), and direct operator cost savings (\$2676.9 Million Median).

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Appendix A. Average Age of Heavy Vehicles above 4.5t GVM

Country			Data Source/Comments
	2014	2015	
Germany	6.7 (Includes LCV's, <3.5t GVM)	N/A	ACEA Vehicles in Use 2009-2014. Published 2016
Austria	7.05 (Includes LCV's, <3.5t GVM)	N/A	ACEA Vehicles in Use 2009-2014. Published 2016
Sweden	7.07 (>3.5t GVM)	N/A	ACEA Vehicles in Use 2009-2014. Published 2016
France	7.3 (>3.5t GVM)	N/A	IHS Automotive
Netherlands	7.4 (>3.5t GVM)	N/A	ACEA Vehicles in Use 2009-2014. Published 2016
Denmark	7.5 (>3.5t GVM)	N/A	ACEA Vehicles in Use 2009-2014. Published 2016
Great Britain	7.6 (>3.5t GVM)	N/A	ACEA Vehicles in Use 2009-2014. Published 2016
South Africa	N/A	9.8 (Includes LCV's, <3.5t GVM)** 8.9 (>3.5t GVM)**	NAAMSA January 2017 2016 December data
Belgium	9.4 (>3.5t GVM)	N/A	ACEA Vehicles in Use 2009-2014. Published 2016
Japan	11.8 (>3.5t GVM)	11.9 (>3.5t GVM)	JAMA January 2017
Hungary	12.6 (>3.5t GVM)	N/A	ACEA Vehicles in Use 2009-2014. Published 2016
Spain	12.8 (>3.5t GVM)	N/A	ACEA Vehicles in Use 2009-2014. Published 2016
Finland	13.7 (>3.5t GVM)	N/A	ACEA Vehicles in Use 2009-2014. Published 2016
Turkey	13.7 (>3.5t GVM)	N/A	ACEA Vehicles in Use 2009-2014. Published 2016
Australia	13.8 (13.5t GVM) 14.7 (>4.5t GVM)	13.9 (>3.5t GVM) 14.8 (>4.5t GVM)	Australian Bureau of Statistics
USA	N/A	14.8 (>6.35t GVM) 11.4 (2.72t to 6.35t GVM)	IHS Automotive/As at 30th June 2015
Italy	14.6 (>3.5t GVM)	N/A	ACEA Vehicles in Use 2009-2014. Published 2016
Portugal	14.7 (>3.5t GVM)	N/A	ACEA Vehicles in Use 2009-2014. Published 2016
Estonia	17.1 (>3.5t GVM)	N/A	ACEA Vehicles in Use 2009-2014. Published 2016
Poland	20.7 (>3.5t GVM)	N/A	ACEA Vehicles in Use 2009-2014. Published 2016

Appendix B. Table 1A Impact Assumptions for all Scenarios

	Year	Low (\$ Million)					Medium (\$ Million)					High (\$ Million)				
		Safety	Health	CO ₂	Ops	Total	Safety	Health	CO ₂	Ops	Total	Safety	Health	CO ₂	Ops	Total
	2017	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
National Truck Plan (5 Years)	2018	8.9	53.6	2.9	218.7	284.1	12.0	107.1	3.8	296.8	419.7	14.1	157.1	4.5	350.4	526.1
	2019	9.2	109.1	3.0	226.2	347.5	12.3	218.2	3.9	306.9	541.3	14.5	320.2	4.6	362.4	701.7
	2020	9.5	166.9	3.1	233.9	413.4	12.7	333.8	4.0	317.3	667.8	15.0	489.7	4.8	374.7	884.2
	2021	9.8	223.4	3.2	241.8	478.2	13.1	446.8	4.2	328.1	792.2	15.4	655.6	4.9	387.4	1063.3
	2022	10.1	215.2	3.3	250.0	478.6	13.5	430.3	4.3	339.3	787.4	15.9	630.8	5.1	400.6	1052.4
	Sub Total	57.9	768.1	18.9	1429.1	2274.0	63.6	1536.3	20.2	1588.4	3208.5	74.9	2253.4	23.9	1875.5	4227.7
Ongoing Benefits	2023	10.4	174.7	3.4	258.5	447.0	13.9	349.4	4.5	350.8	718.6	16.4	512.6	5.3	414.2	948.5
	2024	10.7	135.7	3.5	267.3	417.2	14.3	271.3	4.6	362.7	652.9	16.9	398.6	5.5	428.3	849.3
	2025	11.0	98.1	3.6	276.4	389.1	14.7	196.2	4.8	375.0	590.7	17.4	289.0	5.6	442.9	754.9
	Total	79.6	1176.6	26.0	1972.8	3544.5	106.5	2353.2	34.1	2676.9	5170.7	125.6	3453.6	40.3	3160.9	6780.4