Summary of submissions received by the National Environment Protection Council in relation to the draft National Environment Protection (Diesel Vehicle Emissions) Measure and Impact Statement and National Environment Protection Council's responses to those submissions

NEPC

National Environment Protection (Diesel Vehicle Emissions) Measure

NEPC
NATIONAL ENVIRONMENT PROTECTION COUNCIL

This document and the NEPM and Impact Statement are available on our web site www.nepc.gov.au, or from:

National Environment Protection Council Service Corporation
Level 5 81 Flinders Street
ADELAIDE SA 5000

Telephone: (08) 8419 1200
Facsimile: (08) 8224 0912

exec@nepc.gov.au

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1 INTRODUCTION

This document provides a summary of issues raised in submissions received in regard to the draft National Environment Protection Measure for Diesel Vehicle Emissions and the draft regulations for in-service emission Standards developed by the National Road Transport Commission.

This document also provides a detailed account of changes made to the draft NEPM and draft Standards as a result of public consultation.

The Summary of Submissions should be read in conjunction with the National Environment Protection Measure (Diesel Vehicle Emissions) and Impact Statement.

2 PROCESS

NEPM/STANDARDS PACKAGE

Under the NEPC Act, where standards relate to the design, construction and technical characteristics of motor vehicles, they must be determined in accordance with the National Road Transport Commission Act 1991 and, where appropriate, the Motor Vehicle Standards Act 1989.

The draft NEPM for Diesel Vehicle Emissions was developed in conjunction with in-service emission standards developed by the National Road Transport Commission (NRTC). The goal of the NEPM is to facilitate compliance with the in-service emissions standards developed by the NRTC.

NEPM AND IN-SERVICE STANDARDS DEVELOPMENT PROCESS

- In September 2000, the NEPC advertised its intention to develop a NEPM for Diesel Vehicle Emissions in major national and major metropolitan newspapers;
- The NRTC advertised its intent to develop in-service emission standards in the same advertisements.
- A Project Team was established to prepare the draft NEPM and in-service standards.
- An NGO Advisory Group (based on the Transport Emissions Liaison Group of stakeholders established under the Motor Vehicle Environment Committee) and a Jurisdictional Reference Network were established to provide policy advice during the development of the NEPM.
- Preparatory research projects were commissioned to provide data that would assist jurisdictions to evaluate:
  - the scope and dynamics of emissions to urban airsheds by the Australian diesel fleet;
  - options for reducing emissions from in-service diesel vehicles; and
  - potential environmental benefits and associated costs related to managing emissions from the in-service diesel fleet.
- In August 2000 an Issues Paper was circulated to key stakeholders seeking advice on the potential scope of a NEPM.
- In November 2000, a Discussion Paper was released to key stakeholders for a one month comment period, seeking advice on the potential content and impacts of a NEPM.
- A draft NEPM and Impact Statement were prepared on the basis of the research and consultation undertaken and made available to jurisdictions for further comment; and
- On 16 February 2001, the National Environment Protection Council released the Draft NEPM and Impact Statement for public comment and consultation. NRTC likewise released the draft standards for public consultation. Advertisements were again placed in major national and metropolitan newspapers and included an invitation to provide submissions.

(Note: a more detailed description of the development process is included in the *Impact Statement for the Draft National Environment Protection (Diesel Vehicle Emissions) Measure – February 2001*.)

PUBLIC CONSULTATION PROCESS

In summary, consultation on the draft NEPM was delivered through the following processes in accordance with the NEPC Consultation Protocol:

- input provided by the NGO Advisory Group and the Jurisdictional Reference Network;
- release of a Issues Paper (15 submissions received);
- release of a Discussion Paper (15 submissions received);
- release of the Draft NEPM and Impact Statement (with meetings in all capital cities);
- targeted meetings with key government agencies and other stakeholders; and
- consultation with industry, the conservation movement, local government and other government agencies by jurisdictional governments.

For the draft in-service emissions standards, draft NEPM and the Impact Statement, the public comment period commenced on 19 February 2001 and finished on 27 April 2001. Public meetings were held in all capital cities to assist people who wished to make a submission. The availability of the draft NEPM, and notification of the associated public meetings, were advertised in state and national newspapers. Members of the Project Team gave presentations on request to conferences held by the Australian Trucking Association and the Association of Australasian Diesel Specialists.

The project team analysed the submissions on the discussion paper and sought advice from the Jurisdictional Reference Network, the Non-government Organisation Advisory Group and NEPC Committee in incorporating relevant comments into the draft NEPM and Impact Statement for Diesel Vehicle Emissions.

Twenty eight submissions were received from environmental groups, community groups, individuals, government agencies, industry bodies and companies.

The project team analysed the submissions and revised the draft NEPM and draft standards accordingly.

3 SUMMARY OF KEY CHANGES TO THE DRAFT IN-SERVICE EMISSION STANDARDS

The following amendments were made to the draft In-service Emission Standards:

- Change the range of vehicles to which the regulation applies – consistent with the NEPM.
- Raise the NO_x standard from 1.5g/km/t to 2g/km/t for pre 1995 vehicles 3.5 – 12 tonnes.
- Clarify that the specified opacity level is an average level over the DT80 cycle.
- Include a requirement that vehicle owners provide reasonable evidence of repair before an exemption from further repair can be issued.
- Delete the option of obtaining an exemption from further repair simply by spending a specified amount on repairs.
- The definition of gross combination mass is twofold. The Gross Combined Mass used in the loading formula should be the lesser of the two options in the definition.
- The definition of tare weight has been changed such that it refers to tare mass and does not refer to the information on the registration document (some registration documents do not specify tare).

4 SUMMARY OF KEY CHANGES TO THE DRAFT DIESEL VEHICLE EMISSIONS NEPM

Following consideration of:

- the submissions received;
- advice provided by the Non-Government Organisation Advisory Group;
- input from the Jurisdictional Reference Network and the Project Team; and
- legal drafting advice,

a number of changes have been made to the draft Diesel Vehicle Emissions NEPM. In addition to the substantive changes listed below, the NEPM has been redrafted to correct minor grammatical and formatting errors. These drafting changes, where they do not alter the intent or effect of the NEPM, are not listed below.

The key changes are as follows:

CLAUSE 3 - DEFINITIONS

The following definitions were inserted or amended.

"ADR" means an Australian Design Rule which is a National Standard determined under Section 7 of the *Motor Vehicle Standards Act 1989.*

"Diesel vehicle" means a passenger vehicle, omnibus or goods vehicle powered by a diesel fuelled engine and meeting the criteria for an "M" or "N" category vehicle under the ADRs.

"Emissions test" means the in-service vehicle emission test determined by the Australian Transport Council or successor body.

"In-service Emissions Standards" means the in-service vehicle emission standards determined by the Australian Transport Council or successor body.

CLAUSE 5 - PREAMBLE

The final dot point was amended as follows:

- reduce vehicle use and encourage efficient driving behaviour.

CLAUSE 6 - STRATEGIC CONTEXT FOR THE MANAGEMENT OF EMISSIONS FROM DIESEL VEHICLES

The first sentence was amended as follows:
"Diesel vehicles make a disproportionately high contribution to NO_x and particle air pollution from the transport sector."

CLAUSE 9 - SCOPE

The scope was amended as follows
"The scope of this NEPM is to provide guidelines for developing programs to minimise the deterioration in exhaust emissions performance, or improve exhaust emissions performance, from diesel vehicles while they are in service."

CLAUSE 12 - IN-SERVICE EMISSIONS STANDARDS

Reference to in-service emission standards has been amended as follows:

"Participating jurisdictions will use the in-service vehicle emission standards and test determined by the Australian Transport Council or successor body as the benchmark against which to assess the emission performance of diesel vehicles.

The emission standards have been developed for determining pass/fail limits for the Test and Repair Program and for comparative purposes for the Audited Maintenance Program. However, they can also be used as a benchmark for assessing the effectiveness of the other three strategies."

CLAUSE 13 - APPLICATION

The following criterion was added for assessment of the need to act:
"other relevant information."

CLAUSE 15 – REPORTING

The following line was added to this clause:
"The first reporting year will end 30 June 2002."

SCHEDULE A (2): GUIDELINE ON DIESEL VEHICLE EMISSION TESTING AND REPAIR PROGRAMS

CLAUSE 3.1 - TARGET VEHICLES

Amended as follows:

"Jurisdictions should consider one or more of the following means of targeting vehicles from the Australian fleet for testing under a test and repair program:

- All diesel vehicles over five years of age.
- Random sampling or targeting particular vehicle class/es within the diesel fleet over 5 years of age (refer table below for the emissions related fault profile of the fleet).
- Random roadside testing.

Frequency of significant emission related faults in the Australian diesel fleet

Vehicle Mass	Vehicles < 5 years old ADR 70			Vehicle 6-20 years old Pre ADR 70		
	% with significant emission faults			% with significant emission faults		
	NO_x	Particles	Opacity	NO_x	Particles	Opacity
< 3.5 tonnes	4	13	4	5	32	10
3.5 to 12 tonnes	2	13	5	5	12	14
12 to 25 tonnes	0	11	0	3	20	3
> 25 tonnes	0	8	0	0	1	1

Note: Values based on the percentage of vehicles identified in NEPC Project 7 that have emission levels above the proposed in-service emission standards. Data is current at June 2001. During the conduct of test and repair programs, jurisdictions may obtain information that updates this table."

CLAUSE 3.2 - EMISSION PASS/FAIL LEVELS

Amended as follows
"In implementing a vehicle test and repair program, a jurisdiction should nominate the pollutants it wishes to target. These should include particles and visible smoke measured according to the vehicle emission standards and test determined by the Australian Transport Council or successor body.

A jurisdiction may also choose to target NO_x emissions.

The pass/fail levels will be the appropriate in-service emissions standards as specified by the Australian Transport Council or successor body."

CLAUSE 3.4.1 - IN-SERVICE EMISSIONS TEST

Amended to read:

"The in-service emissions test to be employed in a diesel vehicle test and repair program is the test determined by the Australian Transport Council or successor body."

CLAUSE 3.4.2 - IN-SERVICE EMISSIONS TEST EQUIPMENT

Amended as follows:

"Required equipment specifications are detailed in the in-service vehicle emission standards and test determined by the Australian Transport Council or successor body."

"The DT80 transient short test has been found to be a good test for identifying high polluting vehicles. For emissions inventory purposes results should be measured in g/sec on the DT80 and converted to CUEDC measurements using the correlation coefficient determined in NEPC Project 2.2. The CUEDC scores can than be used for inventory purposes as they reflect a better estimation of real world driving patterns."

CLAUSE 3.4.4 – TEST /REPAIR PROCEDURE

The clause was amended as follows
"7 Re-test the vehicle.*
8 Repeat steps 4 – 7 until the vehicle passes or is granted a qualified waiver (see below).
* A jurisdiction may choose to accept evidence of vehicle repair other than re-testing such as a statement of repair from an accredited repairer. This may be necessary in cases where a vehicle is identified as not meeting the standard in a jurisdiction other than its jurisdiction of registration."

CLAUSE 3.4.5 - REPAIR REQUIREMENTS

Amended as follows

"Any vehicle that fails to meet the in-service standard will be required to be repaired, and provide evidence of that repair. The Australian Transport Council or successor body may prescribe an acceptable level of evidence to show that the repairs have been undertaken. For reasons of practicality it is desirable in a test and repair program to place a limit on the scope of effort expended on repairs. Such provisions mean that once the limit is reached, vehicles are granted a waiver of the test requirement in that instance. Such a waiver does not preclude the vehicle from being targeted for testing in the future according to a jurisdiction's vehicle testing schedule (eg yearly, 2 yearly testing).

A national approach to waivers or exemptions may be set by the Australian Transport Council or successor body. The national approach may reflect the following criteria:

- The vehicle has failed a re-test after qualifying repairs (as listed below) have been made.
- All original emissions related components are present, intact and properly connected.
- Repairs have resulted in an improvement in vehicle emissions.

Repairs may include but are not limited to:"

SCHEDULE A(3): GUIDELINE ON AUDITED MAINTENANCE PROGRAMS FOR DIESEL VEHICLES

CLAUSE 3 - PROGRAM OUTLINE

Amended as follows:

"Arrangements for financing the program would need to be determined and a system for its administration established. A regulatory and/or market strategy would need to be developed to ensure adequate adoption of the program."

SCHEDULE A(4): GUIDELINE ON DIESEL VEHICLE RETROFIT PROGRAMS

CLAUSE 4 – SCOPE

Amended as follows:
Particle traps/filters can deliver large PM emission reductions in specific applications. To be effective, they need to be carefully tailored to particular engines and in-service use patterns. Fuel sulfur levels must be < 500ppm, with some trap technologies requiring very low sulfur levels (around 50ppm) to be effective.

Diesel oxidation catalysts (DOC) are well proven technology, commercially available and are currently used in retrofit programs in the US and Europe. DOCs are effective in reducing HC, CO and PM emissions, but usually have no significant impact on NO_x emissions. DOCs are also effective in reducing odours from diesel exhaust.

Thus it is recommended that retrofit programs focus on the use of diesel oxidation catalysts in the medium term. While the costs and other complexities with the use of particle traps tend to limit their adoption at this stage, they have the capacity to deliver substantial reductions in PM emissions, and may be a viable option where the particular fuel and engine operating conditions can be achieved.

Original equipment manufacturers should be consulted before undertaking any retrofit activity."

CLAUSE 3.1.1 - GENERAL PRINCIPLES

Amended as follows

1. "Emissions reductions are likely to be greatest when the catalyst is tailored to the engine (in accordance with advice from the engine manufacturer) and the maximum commercial fuel sulfur levels are known and controlled.

....

5. DOCs have widespread application."

5 SUMMARY OF PUBLIC COMMENT AND NEPC RESPONSE

In accordance with Section 19(b) of the National Environment Protection Council Act, the National Environment Protection Council has considered all submissions received during consultation on the draft NEPM and Impact Statement for Diesel Vehicle Emissions. Where more than one comment has been provided on the same issue these have been grouped together. These submissions and responses were used to revise the draft NEPM and any additional information regarding issues covered in the Impact Statement was considered by the NEPC when making the NEPM.

The NEPC acknowledges the significant effort made in the preparation of the submissions and thanks those persons and organisations for their constructive comments. The final NEPM reflects the changes resulting from the submissions made to the NEPC.

Key issues raised included:

- In-service emission standards. Issues related to in-service emission standards included:
  - Retrospectivity: some felt that in-service standards would retrospectively apply requirements that did not exist when the vehicles were purchased. This is not correct, as there has always been a requirement for vehicle owners to ensure that their vehicles are maintained in a manner that avoids unnecessarily excessive emissions (National Road Transport Reform (Vehicle Standards) Regulations). Vehicles that are properly maintained should meet the in-service standard.
  - Emission values in the proposed standards: Some considered the values too high, others too low. In particular, the proposed limit for NO_x emissions in the 3.5 - 12 tonne class was more onerous for older vehicles than for newer vehicles. The proposed limits were based on an initial analysis of test results from NEPC (Preparatory) Project 7. It is appropriate that limits for older vehicles be less stringent than (or equivalent to) those for newer vehicles. The values have been adjusted accordingly.
- Engine Retrofit. Several stakeholders considered that the analysis of engine retrofits underestimated their potential to reduce diesel vehicle emissions. The NEPM has been amended to reflect this.
- Special purpose vehicles. A number of submissions expressed concern that the NEPM could cover special purpose vehicles (such as mobile cranes). The definition section of the NEPM has been amended to clarify its coverage.
- The flexibility accorded to jurisdictions in implementation: A number of stakeholders considered that implementation of the programs should be mandatory for jurisdictions.
- Waiver. The issue of a cost-related waiver for vehicle repair was raised in public meetings and in submissions. Some stakeholders did not consider it appropriate to set such a waiver. The final draft NEPM and the In-service Standards have been amended to remove the cost related waiver.
- Cost benefit analysis. Some submissions referred to gaps in the cost benefit analysis data. Social and environmental impacts are difficult to quantify in cost terms, as are the range of implementation scenarios in jurisdictions. The Project Team made considerable efforts to obtain available financial data from stakeholders, with limited response, possibly due to lack of quantifiable data. It is acknowledged in the Impact Statement that social and environmental impacts are difficult to quantify. The Project Team considers that the Impact Statement provides a comprehensive analysis of the costs and benefits given the flexibility inherent in the NEPM.

- Issues beyond the scope of the NEPM: Several submissions raised issues related to fuel quality, energy credits, incentives for vehicle owners/operators and use of alternative fuels which were either beyond the scope of the NEPM, or should be considered by jurisdictions at the implementation stage. Where possible, the appropriate agency/program has been identified in the Summary of Submissions and Responses document.

Many useful editorial comments were also received and the NEPM and Guidelines have been amended accordingly (see Section 4).

METHODOLOGY EMPLOYED IN SUMMARISING AND RESPONDING TO SUBMISSIONS

Many issues and comments were raised in more than one submission, and in different forms. Style and expressions differ from one submission to another, and thus issues are raised in different ways having different connotations, contexts and emphases. As it is not possible in this document to deal with all the subtleties emerging from such variations, an attempt has been made to group similar comments together. Similarly an attempt has been made, where possible, to provide a single response which captures the key issues raised in submissions.

Comments made in submissions have been assessed entirely on the cogency of points raised. No subjective weighting has been given to any submission for reasons of its origin or any other factor that would give cause to elevate the importance of one submission above another.

This summary does not seek to make judgements about the content or accuracy of statements, although different views about particular issues are contrasted. Some of the information presented was anecdotal and varied in its degree of accuracy. Nevertheless NEPC believes that, while it is important to base the development of the NEPM and Impact Statement on sound scientific and technical information, responses which may be less technically accurate also have a significant role to play. Such responses show the ways in which people interpret their experiences and may also highlight gaps in access to information or in knowledge.

Each submission has been given a specific reference number (eg Motor Trade Association of SA Inc is number 3). Where a submission has referred to a subject in the 'Comment' column, that number appears at the end of that 'Comment' in brackets, eg (3). The Issues are categorised under sub-headings such as the guideline being referred to, the Impact Statement, or NEPM itself. Attachment A provides the name of the person or organisation that made a submission, and their submission reference number.

NEED FOR ACTION	
COMMENT	**RESPONSE**
There is a well documented link between diesel particulates and respiratory illness, high impact of diesel vehicles on air quality. Therefore it is necessary to act. (1)	Agreed, the NEPM recognises this by setting guidelines for jurisdictions to facilitate compliance with the proposed standards.

GENERAL COMMENTS	
COMMENT	**RESPONSE**
The significance of the work that has been undertaken will ensure the air quality in Australia continues to exceed international standards for future generations. (4)	Support for the work is noted.
I was impressed with the work and research that has been done and congratulate you on the work done. However, as a nation we need to do more. (7)	Support is noted. Implementation of the NEPM will lead to an increased focus on diesel issues nationally.
We support the process for the development of the In-service Diesel Standards and the NEPM. The Diesel Standards and the NEPM address an important gap in government action to address emissions from the transport sector. The in-service standards will allow for national consistency while the guidelines in the NEPM allow jurisdictions to address their air quality needs in the most effective manner. (11)	Support is noted.
Cleaner exhaust gas and Euro 2000 standards tend to come at the cost of higher fuel consumption. (3)	Cleaner fuel and vehicle standards are outside the scope of the NEPM. However, vehicle designers have an imperative to improve fuel economy with every generation of standards due to market pressures. Indications are that both NO_x emissions and fuel economies are improving with new generation vehicles.
Diesel engine manufacturers need to provide industry users of diesel vehicles with educational support and back up facilities that identify and test diesel engine emissions to the national compliance standard. (20)	In implementing diesel emissions management programs, jurisdictions may choose to explore the appropriateness and scope for engine manufacturer involvement.
It is positive that allowance has been made for jurisdictions to determine the appropriate level of compliance given the level of pollutants in a jurisdiction. (10)	The NEPM is designed to provide uniform standards but to allow the level of compliance to match the scale of local problems.

GENERAL COMMENTS	
COMMENT	**RESPONSE**
Mandate for review of emissions testing equipment and technology. (6)	The process for developing the NEPM has allowed for a review of vehicle test equipment and technology as appropriate.
General support for the principles and measures. (13)	Support is noted.
The Association of Australasian Diesel Specialists would be prepared to participate in education programs on the importance of diesel vehicle maintenance. The Association could extend existing training for members to the wider repair industry. (13)	The training of the repair industry to understand issues related to diesel vehicles is essential. The experience of specialists such as the Association of Australasian Diesel Specialists will be important when developing and implementing this training.
The Association of Australasian Diesel Specialists is independent and is therefore able to service all makes and models to manufacturers specifications. (13)	Noted. The expertise of independent repairers will be important.
Although the document identifies the benefits of reducing particles, there is no data in relation to smoke. I believe it is a gross omission that the effects of smoke have not been quantified and included in your document. (17)	Smoke is recognised as a significant public amenity issue and therefore the impacts of smoke emissions are significant.
There was not enough time to further study technical data. (17)	It is recognised that a number of stakeholders found it difficult to fully review the large volume of data, however public consultation sessions provided assistance in informing stakeholders of the key issues.
For many emerging technologies, very low sulfur fuel will be needed. However the provision of these fuels is not assured as it is under the jurisdiction of the States. (19)	The Commonwealth will regulate fuel quality from 2002.
NEPC should test second hand industrial engines and non-genuine filters for emissions performance. (3)	The NEPM applies only to road vehicles - industrial engines are managed by other State based legislation. The draft standards are set for emissions performance of the vehicle as a whole, rather than for individual components that affect emissions.
Japanese engines are designed for speeds 40-80km/h and as such are underpowered for Australian speeds and loads. Suspect that they have to be tampered with to achieve desired power. (3)	Tampering with a vehicle's engine emission settings is illegal. Vehicles that have been tampered with and are high emitters will be identified by the emission test.
We have the view that if the fuel being provided is cleaner, then emissions from the vehicle will be better. The most effective way of reducing emission	Fuel quality is beyond the scope of this NEPM. It is recognised that improved fuel quality will reduce emissions. The Commonwealth Government is establishing fuel quality standards for this reason. A

GENERAL COMMENTS	
COMMENT	**RESPONSE**
levels is to reduce the sulfur level in diesel to 50ppm. This is the current standard in Europe and will not only allow modern engines to operate at the designed emission levels, but also reduce the emissions on all other engines substantially. (5)	diesel fuel sulfur limit of 50ppm will apply from 2006.
We are fully supportive of the drafts & commitment to reduce diesel emissions. (13)	Support is noted.
Codes of practice are required for industries providing diesel engines and/or servicing - industry must be able to demonstrate compliance. (20)	A significant element of an audited maintenance program will be the development of a system to enable the repair industry to demonstrate that they have adequately maintained and repaired engines. Jurisdictions will need to explore this issue when considering an audited maintenance program.
While alternative fuels such as CNG are briefly discussed, it is noted that the use of such fuels is limited at this stage. It may still be worthwhile listing them as a management option open to jurisdictions. (21)	Agreed. Reference to appropriate fuels as a management option has been made in the preamble to the NEPM and includes the appropriate use of alternative fuels.
Due to the tight timeframes associated with the development of this NEPM, many in the transportation industry are struggling to understand the reasons for and implications of the NEPM. Further education may be required in this regard prior to the NEPC vote on the implementation of the NEPM. (22)	Public consultation meetings have been held in every jurisdiction to explain the NEPM and standards. Peak bodies representing the transport industry have been consulted during the preparatory projects and the development of the NEPM and Standards. Stakeholder comments generally reflect a good understanding of the issues and demonstrate that public consultation was well received. Transport and environment departments within jurisdictions can be contacted to get further information on the NEPM and in-service standards. It is envisaged that jurisdictions will undertake local consultation if they determine to develop programs for managing in-service emissions from the diesel fleet.
Emissions reduction debate is clouded by wider economic concerns of business and industry. There needs to be community/economy wide commitment and costs of compliance need to to be spread. (14)	The national commitment to reduce the exposure of the population to emsissions from diesel vehicles has been reflected in a wide range of initatives by governments in response to health information and public demand for action. Actions have been taken over many years to address pollution from different sources including industry and transport Updated new vehicle emission standards for both petrol and diesel vehicles

GENERAL COMMENTS	
COMMENT	**RESPONSE**
	were legislated in 1999, to take effect from 2002. The NEPM will address in-service emissions from diesel vehicles, which are disproportionately high emitters of NO_x and particles.
The references to hydrocarbons and carbon monoxide should be removed as none of the guidelines ensures detection of these emissions. (23)	It is important to recognise that hydrocarbons and carbon monoxide are still important pollutants and the NEPM should make reference to them.
The NRTC's draft guidelines should be finalised if there is to be consistency in enforcement. (23)	It is intended that the NRTC Regulations will be finalised at the same time as the NEPM is finalised, subject to the statutory processes of NEPC and NRTC.
There is support for the concept of reducing emissions from diesel vehicles, however we question that a NEPM is appropriate for Western Australia due to: planned implementation of an air quality management plan, equity issues and the large expense for small emissions benefits. (24)	The NEPM does not limit jurisdictions to the guidelines listed to reduce diesel emissions. Actions undertaken under the air quality improvement plan can be reported to NEPC as actions taken under the NEPM.
On page 18 of the Impact Statement there is a contradiction with regard to the importance of vehicle age in targeting. This needs to be clarified. (21)	Agreed, this has been clarified through a minor amendment to the NEPM.
Without robust economic data available as an input to strategy selection, NEPM strategies or other strategies may be chosen for reasons other than environmental outcomes, including ease of administration or political considerations. (24)	Jurisdictions will be required to report on the need to act and actions taken based on their assessment of their air quality needs.
Emissions from the growing number and use of diesel vehicles poses an urban air quality problem, the NEPM should facilitate effective action across jurisdictions to reduce in-service emissions. (26)	Noted. This concern is a significant reason for the development of this NEPM.
More action is needed to improve fuel quality and vehicle design standards to match international best practice. (26)	Significant actions in these areas have occurred in the past two years. The resulting improvements in fuel quality and emissions standards for new vehicles will have a significant positive impact on urban air quality.
A mix of relevant programs will be needed to reduce emissions across the diesel fleet. (26)	The NEPM allows for jurisdictions to develop a suite of programs for managing in-service emissions in a manner that is tailored to achievement of identified air quality goals.

GENERAL COMMENTS	
COMMENT	**RESPONSE**
Better consultation is needed if community stakeholders are to be more engaged in the development of NEPMs. (26)	Consultation can always be improved and the NEPC welcomes advice for improving the consultation process. It is important to note that key stakeholders including the national peak body for community groups have been consulted regularly since the preparatory projects began over two years ago. The development of the NEPM was advertised in national and state newspapers. Public meetings were held in each capital city during a two-month consultation period.
Supports the initiatives taken by NEPC and acknowledges the results of the research undertaken. (4)	Support is noted.
We are committed to the Diesel NEPM which has an important place amongst the range of activities being taken to improve air qulaity in urban areas. (11)	Comments are noted.
I was pleased to learn that steps had been taken to undertake a Diesel NEPM. The NEPM for Diesel Vehicle Emissions is well overdue. (17)	Support is noted.
The NEPM has thoroughly investigated most of the factors that produce harmful emissions from diesel vehicles. (19)	Support is noted.
We support, in principle, the development of the draft NEPM and the setting of in-service standards as it accommodates the needs ot individual jursidictions. (22)	Comment is noted.

IN-SERVICE EMISSION STANDARDS	
COMMENT	**RESPONSE**
The use of a fuel additive to meet an emission standard is not appropriate, especially when the impact of that additive on the engine is unknown. (5)	The use of fuel additives is outside the scope of this NEPM.
It is unreasonable for regulators to expect vehicles to be maintained at a higher emission standard than the time of manufacture. (5)	The in-service emission standards do not require a vehicle to perform at a level that exceeds its original design. The proposed standards are set to capture vehicles which have been poorly maintained or tampered with and have significant faults with engine components that affect emission performance. Well maintained vehicles should comfortably meet the applicable

IN-SERVICE EMISSION STANDARDS	
COMMENT	**RESPONSE**
	standard for their age/mass category.
Supports the introduction of in-service emissions standards. (4)	Support for the standards is noted.
Consideration should be given to using light absorption coefficient for the in-service smoke emissions standard instead of opacity. Light absorption coefficient is less variable than opacity and is specified in the European regulations, on which new Australian Design Rules are based. (8)	Opacity has been used for the current and earlier Australian Design Rules (ADRs) and the majority of vehicles on the road have been certified using an opacity NEPMment. For this reason all the testing in the Diesel NEPM preparatory projects used opacity. Opacity is therefore considered the best NEPM at this stage.
The regulations for in-use vehicle standard could reflect increasingly more stringent requirements, similar to the ADR's for new vehicles. (8)	The in-service standards will be adjusted in the future to take account of the emissions performance of engines complying with more stringent Australian Design Rules (ADRs).
Suggests an initial in-service smoke standard of light absorption coefficient (K value) 2.5^{m-1}, reducing to 1.5^{m-1} in 2007. Approximately equivalent opacity values are 22% and 14%. (8)	The results of emissions testing will be monitored and standards adjusted if necessary. Initial standards have been set based on extensive testing undertaken in the preparatory projects.
The draft standards specify a more stringent NO_x limit for the pre-1996 3.5 to 12 tonne vehicles than for the post 1996 models. It would appear logical and appropriate however that this class of older vehicles should not be required to achieve more stringent standards, rather they should achieve the same standard as the post 1996 vehicles. (21) (23)	Agreed. The proposed standard and NEPM have been amended for 3.5 to 12 tonne vehicles built before 1996 to 2.0 grams/kilometre tonne.
Support for including NO_x in the Regulations would only be forthcoming if a cost analysis showed this to have a justifiable benefit. (23)	NO_x standards are included to ensure that measures to reduce particulates do not cause excessive increases in NO_x emissions.
Smoke opacity need to be specified over a time period, such as 'continuous for 10s'. The current wording implies an instantaneous reading of more than 25% would result in a fail. (23)	Noted. An amendment has been made to the proposed regulations clarifying that this standard applies as an average over the DT80 test.
147A (4) (c) - The opacity is stipulated at 25%. This is not quantified before in the current Australian Vehicle Standards Rules, allowing discretion in enforcement. This discretion is considered advantageous if it is to be applied in localities with different air quality problems. (27)	The in-service values are appropriate for the measuring technique specified within the test protocol and are based upon the results of extensive testing of the Australian fleet. It is an inherently different test to the very simple 10 second rule which has a much broader application.
147B (2) - Authority should mean the registrar of motor vehicles in the jurisdiction.	The model regulations offer jurisdictions the discretion to determine the relevant

IN-SERVICE EMISSION STANDARDS	
COMMENT	**RESPONSE**
It should not be the Environmental Agency CEO. (27)	authority.
147B (4) (c) - A waiver based on a condition of expenditure can make the system very vulnerable to corrupt practices and can also be seen as inequitable. However, if after more consideration it is decided to take this course, a better alternative may be to leave the amount to that deemed by the Minister as reasonable. The regulation as proposed would be best used as a policy, which can vary from state to state or region to region. (27)	The waiver based on expenditure has been deleted.
It is recommend that test schedule not be included in the actual Regulations, but referred to as a separate document in the same manner as the NRTC National Stationary Exhaust Noise Tests Procedures. The test can be approved by Ministers and published as a gazetted notice. By using this approach the test can be easily modified without going through the rigours of a regulatory change. (27)	The approach taken has been to put the test procedure and standards into the regulation and put the test equipment parameters and other details into a "Technical and Functional Specification". This approach reflects the fact that if the test procedure is changed, the standards will also need to be changed, so there is nothing gained by having the flexibility to change the test procedure without changing legislation. The jurisdictions have the discretion to pick up the regulations within their own framework in the way they consider best.
There is some concern that additives could be used to give advantage in the tests, consideration may need to be given to providing the fuel to be used at the test (for certain vehicles) - to guarantee the fuel quality standard is uniform. (27)	The DT80 test is a performance based test. Fuel additives will have only a minor effect on emissions performance and it is likely the DT80 test will still accurately determine whether a vehicle has a fault. If the additives are legal and improve the emissions performance there is likely to be an environmental benefit.
There is concern that large vehicles could not be tested safely on a dynamometer if the test forces on the axles are applied based on the regulation's formula based on GCM. There is a potential to apply loads on axles far in excess of the manufacturers design axle loads. Perhaps the formula for loading could have conditions added. 147A (2) (a) - This could result in very high loads on the test machine – a better alternative may be the use of registered	The test procedure has been used on over 700 vehicles of all sizes with no discernible problems. It needs to be considered that the test formula only applies a load to the dynamometer. In effect, the vehicle is replicating the 'real world' tractive effort that would be needed to pull half the nominal payload. The stress on the axle is therefore equal to or less than that of real world driving conditions.

IN-SERVICE EMISSION STANDARDS	
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GCM, which can be very different from the manufacturer's GCM. (27)	In most cases it is unlikely there would be any difference. However, it is agreed that it is appropriate to use the registered GCM to better reflect real world loads. The regulations have been amended accordingly.
To date, the NEPC have not demonstrated any correlation between the proposed test procedure/protocols and standards prepared for the NEPM program and those pertaining to the vehicle's original design. By disengaging the draft diesel NEPM from the ADRs, the NEPM program has: - failed to address the key aspects of in-service emission enforcement that were necessary to support the related Australian Vehicle Standards Rules; - suggested amendments (to the Australian Vehicle Standards Rules) that contradict the underlying premise of the emission related AVSRs. (25)	The national in-service vehicle standards have a general requirement that vehicles are maintained so that they continue to comply with the requirements of the ADRs they were designed to meet. As it is impractical to use ADR tests on in-service vehicles there are a range of in-service tests and inspection protocols that are intended to establish that a vehicle is capable of performing at a satisfactory level. In the past these in-service protocols have been mostly safety related (eg. brake inspection procedures). The NEPM emission test procedure and standards are focused on minimising harmful exhaust emissions from in-service vehicles but in concept are no different to the almost two hundred rules in the existing Australian Vehicle Standard Rules. Research has established that exhaust emissions can be minimised if vehicles are properly maintained, regardless of the particular Australian Design Rule they were built to. The in-service emission standards have been developed as indicators of engine faults related to poor emission performance and will not require a vehicle owner to improve upon the original design of their vehicles engine if it is found not to comply with the in-service standards. Rather the engine may be required to be restored to the condition of a well maintained engine of its type. Retrofit and rebuild programs are expected to lead to improvements over original emissions performance, however it is recognised that such programs will require incentives to be effective and compliance with the in-service standards will not necessitate the use of retrofit devices or low

IN-SERVICE EMISSION STANDARDS	
COMMENT	**RESPONSE**
	emission rebuild kits.
Not withstanding concerns regarding the viability of the draft NEPM, it is incongruous that a vehicle of less than 3.5 tonne and manufactured in January 1996 or later (and certified with NO_x and PM standards) be subject to the identical NO_x and PM standard as a similar sized vehicle manufactured prior to January 1996 (and certified without NO_x and PM standards). The application of identical standards for these vehicles irrespective of date of manufacture is not evident for any other stated vehicle category. Of further concern is the NO_x standard for vehicles manufactured in January 1996 or later (certified with NO_x and PM standards) being 30 per cent greater than that for similar sized vehicles manufactured in December 1995 or earlier (and certified without NO_x and PM standards). (25)	The Euro 1 standards did not set limits on particle emissions from 4WDs and light commercials under 3.5 tonnes and so the introduction of ADR70/00 in 1996 had little impact on these vehicles emissions performance. Analysis of emission data from the fleet found that NO_x emissions were similar for vehicles built before and after 1996. The results obtained from repairing high emitting vehicles indicated that the same in-service emission NO_x and particle standards were applicable for pre and post ADR 70 vehicles. It is agreed that the NO_x emission standard for pre-ADR 70 vehicles should not be more stringent than the standard for post-ADR 70 vehicles and the standard has been amended.
Despite presenting separate emission data demonstrating that emission rates for passenger vehicles and light commercial vehicles vary, the proposed NEPM standards do not differentiate between passenger vehicles (including 4 WDs) and light commercial vehicles. The assertion that passenger and light commercial vehicles should be subject to identical in-service emission standards is unsubstantiated. For transparency and consistency with the ADRs, in-service standards should be prepared in accordance with the vehicle categories outlined in the relevant ADRs. (25)	4WDs and light commercial vehicles under ADR70/00 and future ADRs comply with the same Australian Design Rule for emissions, although the emission limits vary with the mass of the vehicle. The very small number of "standard" passenger vehicles running on diesel would not warrant a separate standard at this stage.
In addition to sub rule 6 of rule 147B, owners should be granted a waiver if: - the vehicle has been assessed according to an independently accredited maintenance and environmental industry program; - the faulty or missing components that are documented to be on order and prepaid by the owner are not available. In these circumstances, the time to facilitate the repair should be extended;	Provisions to allow an extension of time to repair because of extenuating circumstances are available under existing programs that manage vehicle defects and will be available under the NEPM programs. It is considered that the provisions which will apply if a vehicle fails a retest are adequate and that it will not be necessary to add any provision to reimburse the costs of the vehicle owner.

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COMMENT	**RESPONSE**
- parts are faulty or missing; - the vehicle cannot be tested due to technical problems or to a circumstance unique to that vehicle. In the event that a vehicle has failed a re-test after qualifying repairs have been undertaken, Jurisdictions should reimburse the vehicle owner the cost of repairs within 30 days of the re-test. (25)	
The proposed amended standard requires that smoke opacity must not be greater than 25 percent. The derivation of the proposed smoke standard is unsubstantiated and inconsistent with US pass/fail standards of between 40 and 70 per cent. A key finding of the NEPC diesel emission research program is that exhaust smoke opacity from diesel vehicles is a poor surrogate for mass emissions of fine particulate matter NO_x, CO or HC (NEPC, 2001). Accordingly, there is now a substantial body of evidence to confirm that Rule 147 sub rule 2 of the Australian Vehicle Standards Rules (the ten second rule) cannot be effective in addressing urban air quality. The proposed introduction of the 25 per cent smoke opacity standard as the preferred smoke standard and the benign role of the ten second rule in addressing urban air quality conspire, at the very least, to necessitate the deletion of Rule 147, sub rule 2 from the Australian Vehicle Standards Rules. (25)	Each of the opacity levels cited is associated with a different measuring technique and may refer to peak or average opacity. The average opacity levels proposed for the in-service standards are appropriate for the measuring technique specified within the test protocol and are based upon the results of extensive testing of the Australian fleet. While emissions of smoke do not correlate well with emissions of other pollutants, such as particles, excessive smoke does indicate that a vehicle is performing poorly either because of the manner in which it is being driven or poor maintenance. Public reports about excessive smoke emissions are one of the most common complaints received by jurisdictions (around 12,000 per year in both NSW and Victoria). The 10 second smoke rule in combination with the loaded transient test for opacity forms a two-fold criterion for smoke emissions.
We strongly support the in-service standards developed by NRTC. (21)	Support is noted.
The standards appear to have been set at a level that will capture the gross emitting diesel vehicles on the road. Information provided indicates these standards have been designed at a level which should not pose a problem for well-maintained vehicles. (21)	This was the intent underlying development of the standards.
As a general principle we support the basic principle of the draft NEPM that all trucks should continue to comply with the	Over the last ten years or so particulate emissions have been recognised as the major health risk from diesel exhaust emissions.

IN-SERVICE EMISSION STANDARDS	
COMMENT	**RESPONSE**
emission standards established in the ADR applying at the time of manufacture allowing for reasonable wear and tear. This then raises the issue of the emission standards derived to apply to trucks manufactured prior to 1995 for which there were no measurable standards in existence. However, while the retrospective regulation of standards is an important issue of principle we, on our industy's behalf, would need to be assured that any retrospective standards were not only reasonable for the technology available at the time of any trucks manufactured prior to 1995, but also that the research and data analysis in setting those standards was both thorough and reasonable. (25)	New vehicle standards have been rapidly amended to reflect this knowledge and standards for particulate emissions have been introduced and are being progressively tightened. Before December 1995 Australian Design Rules did not require vehicles to meet standards for particulate and NO_x emissions. The research conducted for the Diesel NEPM showed very clearly that by conducting repairs on high emitting vehicles it is possible to significantly reduce particulate emissions without causing an excessive increase in NO_x emissions. These repairs consisted of the standard adjustments and component overhauls and replacements that are common in the diesel repair industry. The Diesel NEPM research also showed that pre-1995 vehicles are significant contributors to particle emissions in major airsheds. Given that it is now known that: • diesel particle emissions can have a significant health impact; • pre-1995 vehicles are significant contributors to particle emissions and; • emissions from these vehicles can be significantly reduced by proper vehicle maintenance; it is appropriate to introduce programs to control particulate emissions from pre-1995 vehicles irrespective of the requirements of the ADR at that time, as long as it can be shown that the imposition of these standards will only require repair of faulty vehicles. The standards were developed in a way so that any vehicle exceeding the standard is likely to have an engine fault resulting in poor emission performance. Non-complying vehicle owners are only required to repair their vehicles with original (or original-equivalent) parts. Therefore no retrospective standard has been introduced that forces a redesign of existing engines.

IN-SERVICE EMISSION STANDARDS	
COMMENT	**RESPONSE**
	Where it is believed that failure to conduct adequate maintenance would result in an unacceptable risk to health there are precedents for in-service standards that have no corresponding ADR. The standards for the maintenance of steering on vehicles are one example.

NEPM SCOPE	
COMMENT	**RESPONSE**
Increased enforcement of unregistered vehicles (2)	Enforcement of vehicle registration is beyond the scope of the NEPM. It is an enforcement issue for jurisdictions.
Sulfur content of diesel fuel should be reduced to 0.05%. (2)	The Commonwealth Government is commited to 0.05% sulfur content in diesel fuel by the end of 2002.
Federal R&D funding should be directed towards alternative fuelled engines. (2)	This is beyond the scope of this NEPM. The Commonwealth has implemented the Alternative Fuels Conversion Program through the Australian Greenhouse Office. This program directs funding towards alternative fuelled engines.
Should include hybrid fuel vehicles. (6)	The NEPM focuses on diesel vehicles because of their significant contribution to urban air pollution. In-service management for other fuelled vehicles has not been considered at this time but should be considered in the future.
NEPC should consider fuel quality and the importance of fuel injection equipment to engine performance and emission control (13)	Fuel quality is being addressed by Commonwealth legislation. The importance of fuel injection is recognised. Research commissioned by NEPC in developing the Diesel NEPM noted the importance of fuel injection equipment on emissions performance and this has been reflected in the discussion on repair of injectors as part of routine maintenance.
Support new standards for sulfur content of fuel. Need to consider additive to minimise impact on older engines that use sulfur as lubricant. Reduction of fuel to 50ppm will increase cost and encourage use of cheaper substitutes. (14)	Fuel issues are beyond the scope of the NEPM. Fuel issues are being considered by the Commonwealth government.

NEPM SCOPE	
COMMENT	**RESPONSE**
Alternative fuel users are given incentives via rebates whereas diesel vehicle operators are penalised via the 10 second rule. (14)	Alternative fuel issues are beyond the scope of this NEPM. The 10 second smoke rule applies to all fuel types, not just diesel vehicles.
There is a bias towards gas and other alternative fuels over diesel by government in particular the Australian Greenhouse Office. Gas engines have not been subjected to testing for non-visible gases. (14)	The NEPM focuses on diesel vehicles because of their significant contribution to urban air pollution. In-service management for other fuelled vehicles has not been considered at this time but could be considered in the future. The AGO has encouraged conversion towards alternative fuels due to potential lifecycle greenhouse benefits over diesel vehicles.
Population growth in cities contributes to the problem. Need for population, rural and regional development policies. (2)	Population growth is outside the scope of the NEPM, but will be taken into account by jurisdictional assessment of projected trends in fleet growth when considering the need to take action.
Growth in 4WD vehicle numbers contributes to the problem. (2)	The research commissioned by NEPC found that 4WD vehicles use will increase over the next 15 years. The NEPM allows jurisdictions to address pollutants from these vehicles.
Given the current scope and focus of the Diesel NEPM, we do not anticipate any significant direct impacts on our industry. Aspects worthy of future clarification could include any possible overlaps of this initiative with the current Air NEPM and the proposed Air Toxics & $PM_{2.5}$ initiatives. (15)	Noted.
Japanese light commercials with pre-combustion units may not be able to meet New Diesel Emission Standards. (3)	Beyond scope of this NEPM which is for in-service emission standards.
We are concerned about the inclusion of cranes in the NEPM. (9)	The NEPM will exclude special purpose vehicles such as cranes.
Is the NEPC looking to develop control measures for the minerals industry? (15)	The Diesel NEPM will only appy to on road passenger and goods vehicles (as listed in the revised definitions in the NEPM). Special purpose vehicles, such as those used on site in mining operations, will not be targeted. On-road vehicles used by the minerals industry would be subject to control under the diesel NEPM.
The NEPM could more precisely define what vehicles are included in the NEPM. The definition in the standard could be re-iterated in the NEPM for clarity.	Definitions in the NEPM and regulation have been amended to clarify this issue. The focus of the NEPM is on vehicles carrying people and freight on roads.

NEPM SCOPE	
COMMENT	**RESPONSE**
Special purpose vehicles eg mobile bitumen laying plant, road profiling plant, earthmoving equipment and bobcats, such as the many utilised by extractive and associated industry operations, must be excluded from the ambit of the NEPM and compliance based on annual registration avoided. (10) (11) (18) (22)	
Needs to be a transparent and steady approach to the regulation of diesel vehicles. Operators of diesel vehicles need certainty to allow then to invest with confidence. (14)	Regulations for new diesel vehicles are introduced via the ADR legislative process. This NEPM, combined with the in-service emission standards, provides a nationally consistent approach to address in-service diesel vehicle emissions.
We support both the scope and goal of the diesel NEPM. The suite of guidelines listed provides a good range of options for jurisdictions to develop their own programs. (21)	Support is noted. The scope of the NEPM has been changed slightly based on comments received.
Vehicle tampering and fuel adulteration are not addressed in the NEPM. Project 7 results indicate that these issues appeared to be significant contributors to poor emissions performance. Further investigation of these issues would be useful. (24)	Vehicle tampering and fuel adulteration are addressed under other legislation. It is likely that test and repair programs will capture vehicles that have been subjected to tampering.

NEPM	
COMMENT	**RESPONSE**
Evidence provided by the NEPM Impact Statement confirms that vehicles greater than 25 tonne GVM should not be targeted. Accordingly, these vehicles should be exempt from the NEPM program. Additional analyses should be undertaken to assess whether there are other categories of heavy vehicles that also demonstrate few emission related faults. (25)	It is agreed that research has demonstrated that the frequency of emission faults in heavy vehicles is low. It can be concluded that it may not be cost effective to target vehicles greater than 25 tonnes for inclusion is some emission reduction programs. However, the low frequency of fault occurrence does not suggest that those few operators that do not maintain their vehicles should be excluded from having to comply with all maintenance requirements or from being identified through programs such as those that target smoky vehicles.
We support the flexibility provided by the NEPM for developing and implementing programs to address diesel vehicle emissions. We see the draft diesel NEPM as a practical initiative due to the fact that	Support is noted.

NEPM	
COMMENT	**RESPONSE**
diesel vehicles make a disproportionately high contribution to air pollution from the transport sector. (21)	
Section (1)(a) should be amended to read "Assessment of the need to take action to manage emissions from the in-service diesel fleet, utilising the criteria specified in clause 13 or other methods." (23)	Clause 13 of the NEPM has been amended to allow for the use of other information sources in addition to those already listed in clause 13.
The desired environmental outcome is an appropriate one of reducing pollution for in-service diesel vehicles. (18)	Support is noted.
There should be a 'do nothing' option available to those jurisdictions that can demonstrate that diesel emissions to not contribute significantly to ambient air quality or that the reduction of diesel vehicle emissions is not a cost-effective approach to improving ambient air quality. (10)	The NEPM requires an annual assessment by jurisdictions of the need to address diesel vehicle emissions if they are initially not regarded as an issue.
The NEPM should reflect some of the concepts and mechanisms proposed in the Heavy Vehicles Registration Bill (eg the defect notice provisions). In addition there is some inconsistency with terminology in that the NRTC replaced "ownership" with the concept of "registered operator" of a vehicle. The NEPM consistently refers to the "owner" of a vehicle. (10)	Defect notice provisions will be addressed in implementation. The inclusion of the in-service standards in the Vehicle Standards Rules will facilitate the use of the defect notices provisions. The word "owner" will be retained in the NEPM, but it is anticipated that jurisdictions may use "registered operator" in their individual regulations to put NEPM programs into effect.
Impact Statement admits that emission performance of vehicles has deteriorated during the time the Ambient Air Quality NEPM has been in place. (2)	The emissions performance of new vehicles will be improved by more stringent Australian Design Rules gazetted in 1999 and being implemented from 2002. Implementation of the Diesel NEPM will reduce emissions from in-service vehicles.
Preliminary estimates by the Apelbaum Consulting Group suggest that the NEPC may have under estimated the potential reduction in PM_{10} emissions assuming all high emitting vehicles are repaired to the proposed standards. Initial analysis suggests: - a reduction of about 11.9 per cent for PM; - an increase in NO_x of approximately 1.8 per cent; - a reduction in smoke opacity of about 1.6 per cent. Using these fleet wide estimates, the total	NEPC examined the effect of repairing vehicles older than 5 years and less than 25 tonnes GVM. due to the higher frequency of excessive emitters in this age/size group. The NEPC estimates for particle emission reductions for repairing excessive emitters in this age/size group were 4.6-5%. The frequency of excessive emitters is significantly lower in newer vehicles but the impact of an excessive emitter can be higher due to the fact that newer vehicles travel more kilometres than older vehicles on an annual basis.

NEPM	
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annual particle emissions may decline by only 1.3 per cent to 2 per cent in the major eastern seaboard cities (compared with 0.7 per cent to 1 per cent if the NEPC estimates are applied) while NO_x emissions may grow by between 0.4 per cent and 0.6 per cent. (25)	NEPC data suggests that on a fleet-wide basis the effect of repair of excessive emitters on particle emissions would be approximately 11% which is compatible with the Apelbaum estimate. When a vehicle is repaired it is possible for NO_x emissions to rise slightly in exchange for a significant reduction in particle emissions. Research in Australia and overseas has shown that this slight rise is a result of a return of the engine to its design condition and reflects NO_x emissions when the vehicle was new. In terms of health impact the benefit to the community of a reduction in particulates is of most significance.
The health hazards from diesel vehicle emissions have been clearly identified in the Draft NEPM. I strongly believe that health benefits are a number one priority. Implementation costs should be of secondary importance. (17)	The health impacts were the reason for commencing development of the proposed NEPM. NEPC considered all the impacts (including health benefits and implementation costs) on all stakeholders when voting to make the NEPM.
The NEPM fails to adequately address NO_x emissions. (19)	The preparatory projects demonstrated that repair offered little or no improvement in NO_x. NO_x is related to the design characteristics of the engine and varies little over the life of the vehicle. NO_x emissions can be addressed through emission standards for new vehicles.
The five year review time frame in the NEPM is too long to account for the impact of new fuel standards and emerging emission control technology. (19)	Noted. The NEPM allows for an earlier review at the discretion of NEPC. The changes in fuel standards and Australian Design Rules will be implemented from 2002 and will take some time before their effect is fully realised.
The NEPM should be amended to read: "The Scope of this NEPM is to provide guidelines for developing programs to minimise the deterioration in exhaust emissions performance or improve exhaust emissions performance from diesel vehicles while they are in service." (22)	Agreed. The guidelines for retrofit and rebuild are intended to go beyond meeting the standard and aim to improve emissions performance of in-service vehicles. The NEPM has been amended.
The Goal should be amended to read: "The Goal of this NEPM is to reduce exhaust emissions from diesel vehicles, by facilitating compliance with, and where	The Scope of the NEPM has been amended to reflect this issue. Many of the guidelines are capable of achieving emissions reductions significantly beyond the

NEPM	
COMMENT	**RESPONSE**
possible to improve upon, determined in-service standards for diesel vehicles." (22)	proposed standard.
The relationship between the strategies and standards should be clarified. The following text is suggested: "The emission standards have been developed for determining pass/fail limits for the Test and Repair Program and for comparative purposes for the Audited Maintenance Program. However, they can also be used as a benchmark for assessing the effectiveness of the other three strategies." (22)	Agreed. This paragraph has been inserted as suggested.
There is concern that vehicles crossing jurisdictional borders will be disadvantaged as compliance programs will differ across states and territories. (25) (27) Vehicle owners should only be required to comply to those in-service emission measures implemented by the jurisdiction in which the vehicle is registered in accordance with existing vehicle visiting privileges. (25)	Vehicles are mobile sources of pollutants that regularly cross State and Territory boundaries. Jurisdictions currently apply nationally agreed vehicle safety requirements to all vehicles regardless of where a vehicle is registered. It is therefore appropriate for jurisdictions to address their air quality goals by requiring vehicles operating within their borders to demonstrate that they meet national in-service emission standards. The NEPM allows jurisdictions to implement the type of emission management program that is suitable for addressing identified ambient air quality issues. This may result in different compliance programs being in place across jurisdictions. The relationship of the national in-service emission standards to emission related engine faults will provide national consistency of outcomes and should ensure that a reasonably well maintained vehicle will comply with any type of program implemented to enforce those standards. Requiring vehicles to be subject only to the provisions of the jurisdiction in which it is registered would be an incentive for vehicles to register in the jurisdiction perceived to have the least stringent compliance program. This would result in severe distortions within the road transport sector and deprive those jurisdictions with

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COMMENT	**RESPONSE**
	air quality problems of a significant means of addressing them. Any reasonably well maintained vehicle should be able to comply with in-service emissions standards. The NEPM guidelines and the national standards should ensure that properly maintained vehicles should be able to freely travel across borders and not be in danger of failing any emission test a jurisdiction may choose to implement.
The requirement for vehicles to comply with programs operating in jurisdictions to which the vehicle has travelled appears to be unworkable as the vehicle may only be 'passing through'. For example, it would be unreasonable for an interstate vehicle caught in a random IM program to have to return to have the vehicle cleared. The sentence should be qualified by adding "..if a similar compliance program applies in the jurisdiction in which the vehicle is registered" (23)	The draft regulations pick up the 'minor defect' provisions used for safety issues. There are mutual recognition arrangements between the States that enable a minor defect notice issued in one State to be cleared in another. In the very unlikely event that a vehicle was randomly targeted for a test in a jurisdiction other than its own, and it failed the test, then it would be issued with a minor defect notice which could be cleared in the home jurisdiction. Where the home jurisdiction did not have test facilities evidence of repair would be required.
Generally the NEPM provides a framework for managing in-service emissions in WA which complements and protects the emission improvements resulting from our existing regimes. (27)	Noted. The NEPM was designed to complement and support existing programs.
The NEPM is not required if the standards regulated by the Air Quality are being achieved. In the event that the Air Quality NEPM standards are not met then it is incumbent upon the Jurisdictions to implement additional measures that address emissions from those sectors of the economy that are largely contributing to air quality concerns and, within the road transport sector, emissions from all road vehicles, including but not exclusively diesel emissions. We remain concerned at the political thrust of the draft NEPM because when compared to the attention being paid to other sources of emissions affecting air quality, particularly in our cities the selection of	Achievement of ambient air quality standards are not the only criteria jurisdictions will consider in assessing the need to take action. It is well understood that localised exceedences of air quality standards can occur that are not recorded by ambient air monitoring. This can occur in particular circumstances where contributions of emissions from diesel vehicles are significant (refer clause 13 of the NEPM). Such circumstances may include areas of concentrated vehicle activity such as transport corridors and tunnels. Even if the ambient air quality standards are being achieved (not all ambient air standards are achieved in all States), jurisdictions may therefore still determine that there is a pressing need to

NEPM	
COMMENT	**RESPONSE**
trucks for separate regulatory attention is discriminatory. (25)	address diesel emissions. The Diesel NEPM is not prescriptive as to what jurisdictions are required to do beyond assess the need to manage emissions from diesel vehicles. If a jurisdiction decides to take action, the NEPM and the in-service standards provide the tools. The NEPM only addresses emissions from diesel road vehicles. It does not preclude jurisdictions from implementing programs for vehicles operating on other fuels or programs to reduce emissions from non-transport sources. In managing air pollution, the Diesel NEPM does not mean that jurisdictions will only target diesel vehicles. While the NEPM sets a framework for determining if and how diesel vehicles should be managed in jurisdictions, it is important that vehicle owners understand that most jurisdictions have been regulating emissions from industry for decades. There is no good argument to continue to exclude diesel vehicles from regulation. Notwithstanding the Air Quality NEPM standards there is increasing concern about the health impacts associated with particle emissions. Research findings point to there being no safe threshold level for particle exposure; they are easily inhaled and retained in the lung. A review is currently underway to consider whether the Air Quality NEPM standard for particles should include $PM_{2.5}$. In terms of the vehicle fleet, diesel vehicles emit disproportionately high levels of particles (Sydney 60%). It would be extremely incautious to ignore this situation, and indeed the growing body of research data on the health impacts of diesel emissions specifically, to not take action now to improve the emissions performance of the diesel fleet.
The NEPC have targeted on-road diesel vehicles in their endeavours to address	Emissions of oxides of nitrogen and particles of are of significant public concern.

NEPM	
COMMENT	**RESPONSE**
urban air quality. Given the minor contribution of diesel vehicles to urban air quality concerns, it is incongruous that diesel road vehicles are the subject of the first industry based NEPM pertaining to emissions. (25)	Stationary sources of these emissions have been regulated extensively since the 1970s. Road vehicles are on of the last remaining sources not regulated due to the difficulty of developing effective regulation. Governments are reasonably expected to effectively manage emissions of these pollutants at all sources. Diesel road vehicles make a disproportionate contribution to emissions of nitrogen oxides and particles. While they comprise less than 10% of the total vehicle fleet, diesel vehicles contribute approximately 40% of oxides of nitrogen emissions and about 60-70% of particle emissions from the road transport sector. The NEPM requires jurisdictions to assess the contribution of emissions from all sources when determining if there is a need to manage emissions from the diesel fleet.
The NEPM requirement that an owner/operator provide information to jurisdictions such as attitudes to environment issues, the method for financing additions and the financial position of the company (to mention a few) when applying for inclusion in an audited maintenance program is superfluous and a costly imposition on owners/operators. Unless the jurisdictions are prepared to compensate owners for the collation of information that bears no relevance to reducing air quality emissions, then this requirement should be immediately deleted from the NEPM. (25)	The NEPM guideline provides guidance to jurisdictions on criteria for selecting vehicle operators suitable for inclusion in an audited maintenance program. The information is intended to assist in establishing if the applicant is likely to comply with program conditions. It is not envisaged that vehicle operators would incur significant cost by providing this information.
While we agree that any sensible maintenance regime should suffice to eliminate the risk of non-compliance we do not believe that some of the suggestions made would be cost effective. Rather we would consider it far more effective to introduce incentives to facilitate transition to more modern technologies as is being discussed within the context of the proposed energy credits scheme. (25)	The NEPM does not preclude this type of action. However, activities related to the development of an energy credit scheme are beyond the scope of the NEPM.
We support the 5 proposed measures to reduce the in service diesel emissions. (28)	Support is noted.

SMOKY VEHICLES	
COMMENT	**RESPONSE**
Vehicles which emit smoke by design on starting acceleration should have a fuel limiting device fitted which maintains an excess-air factor of at least 10-20%. (6)	The proposed standards are performance based and in the case of smoke an average opacity level is set for the whole drive cycle. Prescribing particular technologies can inadvertently rule out alternative solutions to solve a smoke problem. Nevertheless, the idea of a fuel limiting device should be considered in any audited maintenance program.
Need to address how to deal with public reporting of vehicles registered in jurisdictions other than where the public report comes from. It might require improvement of communications between jurisdictions on this issue of reporting non-compliant vehicles. (10)	Agreed. This will need to be taken up as an issue to be addressed in implementation.
The underlying premise for government reporting [for smoky vehicle programs] is that notices may be issued to operators on the basis of reports from trained government employees. However, the proposed public programs allow the issuing of warning letters to operators based upon a single complaint from an untrained member of the public. Of fundamental concern is that the draft NEPM endorses the practice of unqualified persons being able to impute an alleged environmental indiscretion by road transport operators on the basis of speculative interpretation. This vehicle targeting option should be removed from any draft or existing regulation/legislation pertaining to the environmental performance of motor vehicles. (25)	The NEPM guideline for smoky vehicle programs reflects current practices employed by jurisdictions. No penalty is applied by jurisdictions to vehicles identified by public reporting. Owners are advised that their vehicle has been reported and asked to check their vehicles for problems. Under all programs with enforcement penalties are only incurred following reports made by certified officers.
When a member of the public reports a polluting vehicle, as well as a letter seeking to educate the offender, he/she should also be requested to send in some documentation to prove that the problem has been addressed. (17)	The reliability of public reports may be questionable. Some over-zealous people may report vehicles that smoke for significantly less than 10 seconds. Placing any compulsory requirements on owners receiving a letter sent on the basis of public reports could lead to abuse of the reporting system.
While PM_{10} is mentioned in the draft standards, s147A(4)(b) refers to particles (undefined) and the "Technical & Functional Specification for a Heavy-duty Vehicle Emissions Measuring System" refers to	The research project (Project 7) measured total particles and it is intended that the standards set will be total particle standards. The NEPM and the Technical and Functuional Specifications of the Regulations

SMOKY VEHICLES	
COMMENT	**RESPONSE**
$PM_{2.5}$. It is assumed that $PM_{2.5}$ is the required size. Consistency throughout the documents is required. (23)	will be amended to reflect the measurement of total particles.
Smoky vehicle programs need to include provision for inspection and mandatory repair to have any effect. (26)	This is provided for in the NEPM. Some jurisdiction now have these provisions.
The relationship between smoke emissions and particle emissions should be clarified, as visible smoke is a source of public concern and the value of the ten-second rule is affected. (26)	The research found that the correlation between smoke emissions and emissions of particles is poor. There is a general trend that smoke emissions are higher for dirtier vehicles. Despite the lack of correlation the 10 second smoke rule plays an important role as smoke is considered a pollutant in its own right. Application of the rule directly targets vehicles emitting excessive levels of smoke.
As identified, the 10 second rule comes from ADR30, and although a new engine / vehicle rule, it is usefully applicable to in service, as the 10 seconds to clear the visible smoke was generous. However, a vehicle that passes the 10 second smoke rule, that emits a dark exhaust plume at each traffic light acceleration, will not be seen as acceptable by the public. We would caution the use of 'receipts from qualified mechanics', as the test should be objective. Ideally, we need an effective road side test, like the SAEJ1667 free acceleration test, as used in California. It is a way of removing the subjectivity, as well as dealing with the issue at the time. SAEJ1667 details the sample rate, how to measure opacity etc. In the USA, a fine is applied. This fine can be reimbursed to cover the cost of the repair, for the first offence only. The issue is a free acceleration will only take the order of 2 seconds, not ten. As such a roadside test using free acceleration would not work. A modified DT80 test could be used by ramping up the chassis dyno load to cause the engine to pull full power for an extended period (ie greater than 10 seconds).	The SAEJ1667 has not proven to be satisfactory in evaluating emission performance. Free acceleration does not identify many high emitting vehicles. Additional safety devices in some new vehicles will not allow a vehicle to operate at high speed when it is not moving. Any program would require effective audit and objective assessment components.

SMOKY VEHICLES	
COMMENT	**RESPONSE**
However, this would be costly. (28)	

TEST AND REPAIR	
COMMENT	**RESPONSE**
Test and Repair [programs are] not economically viable given quoted cost of $650-850K for a Mobile and $1.1-1.8 million for a fixed two lane system. (3)	The viability of each option is an issue for jurisdictions when considering implementation options. The establishment cost of a testing facility is high, and jurisdictions will need to consider the scale of their air quality problem when deciding whether to establish testing facilities. The test facility developed in the preliminary projects is arguably the most inexpensive and reliable loaded transient diesel test facility in the world
Suggest a system of stickers to identify vehicles that have passed a test. System of seals to be fitted to emission related items subject to tampering/change out. (6)	We agree that stickers and seals would provide a convenient way to identify vehicles, but we recognise that not all emission-sensitive components are able to be sealed. Implementation will be addressed by each jurisdiction and this suggestion will be considered at that time.
Testing should be compulsory after change out or alteration to timing, turbocharger, fuel injection system or major repairs not instigated by an emission testing program. (6)	Many jurisdictions already have anti-tampering legislation designed to limit the impact of modifications on emissions performance. Undertaking a test following major modification may be beneficial and can be considered by any jurisdictions that utilise test facilities. Vehicle modification will be introduced as a consideration in assessing exemptions under the draft standards.
Compulsory test at change of ownership. (6)	Each jurisdiction will have to determine when and if they will require vehicles to be tested. The option of testing at change of ownership is available to jurisdictions.
There is a lot of discussion in the impact statement about the hazards of $PM_{2.5}$ & PM_1. However, only PM_{10} is nominated in the NEPM. I understand that the relevant Authorities lack the technology to measure particulates smaller than PM_{10}. This matter must be addressed. (17)	It is possible to measure $PM_{2.5}$ and PM_1 and this could be done in conjunction with measuring against the standard if it was desirable to do so. The in-service standards now nominate total particles as the in-service measurement for particles. This has proven to be a good indicator for identifying faulty vehicles.

TEST AND REPAIR	
COMMENT	**RESPONSE**
	Vehicle testing in Austrlalia and internationally has demonstrated that approximately 98% of total diesel particulate by mass is less than PM_{10}, 94% is less than $PM_{2.5}$ and 92% is less than PM_1. This demonstrates that almost all emissions from diesel vehicles are smaller than PM_1. This knowledge allows jurisdictions to use performance measured by the in-service standard in calculating the impact of emission reduction in regard to $PM_{2.5}$ and PM_1 with good precision.
Testing facilities in Australia are sub-standard compared with overseas (14)	Noted - As Australia does not have a local diesel engine manufacturing industry, there are fewer facilities than in some overseas countries. However, the test facilities designed for the NEPM have proven to be inexpensive, reliable and robust.
In-service Emissions Test The requirement to use the fuel currently in the tank, plus other pre-test safety inspection requirements and post-test reporting requirements are not formally documented. It is recommended that such a document be produced and referenced in the draft standards. (23)	These issues will be addressed outside the regulation, either in the technical and functional specification called up in 147A(5) or in other protocols or guidelines produced to supplement the regulation.
Obliging vehicles to be tested - It is recommended that random on-road testing be included here as an illustration of another option. (23)	Agreed. The relevant clause has been amended to reflect the appropriateness of random roadside testing.
Obliging vehicles to be tested is a very expensive option for the public and industry. Local cost/benefit analysis will be necessary to identify the means of compelling or such a encouraging test if applicable in our State. Our Air Quality Management Plan addresses these matters. (27)	It is anticipated that this would be undertaken by jurisdictions as a standard part of the decision making process to determine the most appropriate and cost effective means for managing emissions from diesel vehicles.
The time limit for a waiver should be determined from the rate of deterioration of a vehicle's emissions after servicing and repair. The values in 147B(7) of the draft standards are not supported as the projects that have been conducted do not provide this time limit information. (23)	Any jurisdiction issuing a waiver has the discretion to place a time limit on it. One year may be a reasonable period in the absence of any data showing deterioration trends over time. The values in 147B(7) will be eliminated in favour of the requirements in 147(6)c.
Proposed waivers from vehicle repair should be used cautiously and ensure that owners	Agreed. The use of waivers should be transparent and subject to audit.

TEST AND REPAIR	
COMMENT	**RESPONSE**
of excessively emitting vehicles improve their performance. (26)	
Waivers to offenders, especially when a waiver is based on a condition of expenditure, can make the system very vulnerable to corrupt practices. There are legal implications with respect to the application of such a regulatory requirement and it may need an Act amendment before it can be enforced. (27)	All test programs will require good audit control to be effective. The expenditure based waiver has been removed from the NEPM and In-service Standards.
It would appear that we need a better way of identifying the problem vehicles. This is not easy as not all the PMs are visible (HC and sulfates are less than PM_1, and not visible). Normal soot that comes out of an engine is less PM_1, and is visible. Our information indicates a correlation between soot and opacity. Hence, this test is ideally suited to identify the engines with high lube oil in the exhaust. There are therefore 2 issues with particulates: - smoky vehicle test, aimed at soot, and engines modified for driveability, and - engines with high HC; worn engine, cracked ring, worn valve guides etc A repair and maintenance program to address the vehicles that fail this test is valid. The DT80 may be seen as overly expensive, and overly burden the trucking association. It is the right goal to get the high particulate vehicles off the road. However identifying the problem vehicles without being overly burdensome to the trucking industry is the issue. (28)	The NEPM provides a number of strategies for addressing excessive emissions. The DT80 test is the best inservice test identified at this time. Other tests use internationally only measure smoke and are proving to be of limited value in identifying all vehicles with excessive emissions.

TARGET VEHICLES	
COMMENT	**RESPONSE**
While the heavy vehicle sector is fairly well maintained, the light commercials and private 4 x 4 vehicles are the ones that are very poorly maintained because of the cost	Research commissioned by NEPC found that vehicles greater than 25 tonnes have few faults. The major sources of particle emissions were cars, light commercial

to repair injectors and pumps. (7)	vehicles and rigid trucks. Jurisdictions will use the results of this research and are expected to design programs to target the worst emitters when developing implementation programs.
Impact Statement indicates vehicles with GVM between 4.5 and 6 tonnes and non-European and non-North American vehicles as being thehighest emitters, but the Impact Statement does not isolate the benefits of targeting those vehicles. (10)	It is intended that jurisdictions consider the results of NEPC research and the contribution of various vehicle categories when considering emission control strategies.

AUDITED MAINTENANCE PROGRAMS	
COMMENT	**RESPONSE**
Audited maintenance is the preferred program with its emphasis on prevention rather than repair. It will lower government costs. It may require enforcement, rigorous audit and incentives to ensure smaller operators are not commercially disadvantaged. (3)	Audited maintenance puts the onus on the vehicle owners to maintain their vehicles. It also allows for high benefits if vehicles are always well maintained. Implementation is an issue for each jurisdiction and issues such as costs, audit mechanisms and incentives will have to be carefully considered.
Provided that an Original Engine Manufacturer's maintenance regime is in place, then the Operator should not be required to conduct further maintenance beyond the original specification. A major chassis supplier has advised that comprehensive maintenance programs are available for the life of a vehicle. (5)	The proposed standards have been set so that if a vehicle is maintained to the original specification then it should meet the standard. The Original Engine Manufacturers specifications would certainly form the basis of any audited maintenance schedule, but may need some expansion or clarification to achieve optimal emissions performance.
Audited maintenance systems are similar to existing systems. Commercial vehicle dealers could administer them. Though inexpensive, they may place too much burden on marginally profitable businesses. (3)	Jurisdictions are expected to consider existing systems when implementing an audited maintenance program. A burden on marginally profitable businesess must be carefully considered when developing such a program.
Support the concept of introducing an accreditation system for repairers. (17)	In developing emission management programs, jurisdictions will need consider the costs and benefits of repairer accreditation. A significant element of the audited maintenance package will be the development of a system to enable the repair industry to demonstrate that they have adequately maintained and repaired engines.
Transparency and accountability must be ensured in any audited maintenance programs. (26)	Agreed. This is a fundamental component of audited maintenance programs. The NEPM provides guidelines on the design of

AUDITED MAINTENANCE PROGRAMS	
COMMENT	**RESPONSE**
	systems to ensure transparency and accountability.
The WA Department of Transport would have no problem for a voluntary system although the matter of incentives to encourage industry to participate may be a matter for other agencies. (27)	The NEPM allows sufficient flexibility for jurisdictions to develop suitable options for addressing in-service emissions from diesel vehicles.
Maintenance guidelines from some engine manufacturers are now called up as a guide, and not a rigid 'replace at x kilometres'. Many operators take the view that maintenance companies oil and filter changes, and would need an incentive to participate in such a program. However, Cummins considers that such a program would contribute to the goal of reducing emissions of in service diesel engines. Again, incentives will be required for the operator. The utilisation of the DT80 test under the diesel emission testing program would quantify the effect of maintenance within a given fleet. (28)	Maintenance guidelines from engine manufacturers could be used in an audited maintenance program

ENGINE REBUILD KITS	
COMMENT	**RESPONSE**
Legislation should be introduced to ensure imported vehicles are fitted with 100% effective emission control devices. Further, manufacturers should be made to develop reasonably priced rebuild kits for older vehicles. (2)	This is outside the scope of this NEPM. Australian emission standards are becoming increasingly stringent and manufacturers and importers are required to meet those standards. Governments prefer a performance based approach which sets desired emission outcomes rather than specifiying the required technology to achieve those outcomes.
Our European manufacturer members indicate that it is possible only to build a very, very small number of engines to improve emission levels. If it is to be done with later engines then it is more cost effective to replace the entire engine. We consider that such a provision in the NEPM will only discriminate against European manufacturers and force up the cost of the chassis. (5)	It is recognised that engine rebuild kits are available for a limited number of engines. Engine rebuild programs will be limited in application and will need to take account of this issue.
Rebuild kits are expensive and not widely	NEPC recognises that rebuild kits will have

ENGINE REBUILD KITS	
COMMENT	**RESPONSE**
available. Therefore there is little significance for such a program. (3)	limited application at this time but also recognises that rebuild kits are a proven method of significantly reducing emissions. The availability of kits is likely to increase as demand grows internationally which should in turn bring down the costs.
Ancillary items such as fuel injection equipment, turbochargers etc. should be rebuilt with engines. (13)	The rebuild guideline has been drafted to reflect exhaust emission performance rather than to provide prescriptive actions.
Rebuild kits are available for only a small proportion of the fleet, therefore only offer limited NO_x benefit. (19)	Agreed. However, it is still a legitimate strategy for reducing emissions where kits are available.
Australia should encourage manufacturers from Japan, US and Europe to develop low emission rebuild kits for all high sale engines. Australia should promote the development of low cost NO_x rebuild kits, which could potentially be less than $1000 (19)	Agreed. However these kits come from overseas manufacturers and demand from Australia (1% of world vehicle sales) may have little impact on supply.
Agree in principle with rebuild kits. (13)	Agreement is noted.
Incentive approach to low emission engine upgrades at engine rebuilds will be encouraged if kits are available. (27)	The NEPM recognises that incentives may be required.
At the risk of over-generalisation, upgrading the exhaust emissions performance of an engine at an overhaul event is, to varying degrees, subject to various technical and commercial constraints. The extent of improvement and cost will vary greatly depending on the engine and its initial emissions generation. (28)	Agreed. The NEPM notes that engine rebuild potential is very engine type specific.
It will not be cost justifiable to cross [some] major technological barriers to rebuild engines. Instead, it would be less costly to scrap the engine and install a new design engine in its place. A side effect of rebuilding to lower emissions recipe will be a general increase in running costs of the engine as a result of increased fuel consumption, reduced maintenance intervals or requirements for more technologically advanced and costly lubricating oils. From an emissions perspective, this side effect could result in an increase in CO_2 (from increased fuel consumption) and an increased burden on waste oil disposal. (28)	Agreed. This issue was noted in the Impact Statement and in the NEPM guideline. It is envisaged that jurisdictions would consider these issues in developing an engine rebuild program.

ENGINE REBUILD KITS	
COMMENT	**RESPONSE**
Economics will play the pivotal role in the implementation of such a strategy. Unless there is a financial incentive, operators will not wish to incur the increased rebuild cost and higher running costs voluntarily. (28)	The NEPM acknowledges this issue and advises jurisdictions to evaluate the need for incentives when considering rebuild programs.

ENGINE RETROFITS	
COMMENT	**RESPONSE**
The NEPM recommendations on cost compensation for mandatory installations of retrofit devices are supported. (5)	The NEPM recognises that this is an issue to be considered by jurisdictions during implementation.
We are strongly of the view that the manufacturers of such oxidation catalysts and particulate traps should specifically guarantee the outcomes of fitting such devices before they are mandated. Original engine manufacturers should also be given the authority of approving such devices. (5)	It is agreed that there will be a need to establish the performance of retrofit devices. The performance requirements of the guideline specify the standards that retrofit devices must meet. The guideline has also been amended to emphasise the need to consult with engine manufacturers.
A recent survey of our chassis supplier members has reflected that the success of oxidation catalysts depends upon exact fuel qualities and that a minimum of 500 ppm is required for the 'oxcat' with 50ppm being required for a CRT. These chassis suppliers do not recommend retrofits as their performance capabilities are yet to be established. (5)	Agreed. Fuel quality is important to the operation of emission control devices. The Commonwealth is setting fuel quality standards, including sulfur, effective from 2002.
Retrofit programs are likely to be of limited scope and are expensive, therefore they are of little significance. (3)	Retrofitting has proven to be useful for targeting localised problemns such as the high concentration of buses in a CBD.
Examples given of vehicle that may be encouraged to retrofit in order to secure government tenders (3.1.3 - Key factors to consider), include road building and construction vehicles which may come under the special purpose vehicle exemptions. (10)	The NEPM will not capture special purpose vehicles. However road building and construction companies operate on-road vehicles, which are subject to the NEPM, as well as special purpose vehicles. The intent is to improve the emission performance of these on-road vehicles rather than the special purpose vehicles.
The guideline on retrofit should be maintained. It offers maximum opportunity to improve quality air standards. (17)	Support for the retrofit guideline is noted.
The challenge experienced to date with using diesel particulate filters has been regeneration of the filter. Auxiliary regeneration systems are required because vehicles typically do not achieve the	Agreed. The inherent difficulty in particulate traps is regeneration. This does not mean they should not be used, rather that if they are used, the issue of regeneration must be carefully considered.

ENGINE RETROFITS	
COMMENT	**RESPONSE**
operating temperatures necessary necessary to regenerate the filter. Two types of auxiliary systems are available: active systems which either input energy or use a reaction product such as a chemical oxidant; and passive systems include the use of fuel borne catalyst additives and catalytic coated filter substrates. (16)	
The retrofit guideline should discuss long term NO_x reduction strategies. (19)	Agreed. This issue is likely to be revisited during a review of the NEPM. The technology is not likely to be commercialised in the short term.
The retrofit guideline only discusses catalysts which are resilient to high sulfur levels. The use (and potential benefits) of catalysts designed for low sulfur fuels should be discussed. (19)	The NEPM recognises that benefits may increase with falling levels of sulfur in fuel, and includes this as a factor in the consideration of the performance requirements.
DOCs, which are highlighted as the preferred retrofit device, do not reduce NO_x. SCR, SCRT and NO_x traps should be discussed for this reason. (19)	The current information indicates that these NO_x reducing technologies are not yet commercially available or viable for retrofit applications. The NEPM does not preclude jurisdictions from considering other devices if and when they become a feasible option.
The relatively high costs of retrofitting catalysts would reduce if the programs were introduced (presumably because of economies of scale). (19)	Agreed. The costs are coming down continually as world-wide demand increases.
The Octel Octimax fuel borne additive, when used in conjunction with a diesel particulate filter, can reduce particulate emissions by over 90% and ease the regeneration of the diesel particulate filter by catalysing the "burn-off" of accumulated soot without adverse effects on the vehicle's fuel consumption. The Octel Octimax fuel borne additive/diesel particulate filter system reduces particulate emissions. It should be included into Schedule A(4): Guideline on diesel vehicle retrofit programs. Recommendation that NEPC reconsider not including diesel particulate filters in retrofit program. (16) (12)	Agree that retrofit programs should be based on performance targets rather than being prescriptive. The guideline on retrofit has been amended to reflect the validity of particulate filters as an emission reduction device. Use of fuel borne additives will be an important consideration in fitting particle traps.
Correct fuel needs to be provided for use of oxidation catalysts and particle traps. (5)	Agreed. Fuel quality is important to the operation of emission control devices. The Commonwealth is setting fuel quality

ENGINE RETROFITS	
COMMENT	**RESPONSE**
	standards effective from 2002.
Contrary to statements in NEPM documents, tests in Japan, Europe and the USA have demonstrated reductions in NO_x from diesel oxidation catalysts. (14)	Information from research undertaken during development of the NEPM indicated minimal NO_x reduction benefits from diesel oxidation catalysts. Jurisdictions will need to consider the advantages of specific products (and the development of new technology) when they are developing a retrofit program.
Retrofit programs of diesel oxidation catalysts offer immediate benefits in reduction of PM, NO_x, CO & HC. The program could be enhanced by establishing a testing facility for the diesel oxidation catalysts. (14)	The establishment of testing facilities will be considered by jurisdictions as part of implementation. The DT80 test can be used to assess the performance of various actions and technologies including diesel oxidation catalysts.
After treatment device manufacturers need certainty that, given the ongoing role of diesel, there is clear support from government for diesel treatment devices as a means of reducing emissions. Support for these products should be on the basis of their performance. (14)	The NEPM includes five guidelines for reducing diesel emissions, of which retrofit is one. In making the NEPM, governments are demonstrating support for all five strategies as legitimate diesel emission control approaches.
Diesel oxidation catalysts - Have positive effect on NO_x - Have the potential to meet Euro 4 standards - Price will be influenced by market conditions eg whether locally produced or imported. - A combined muffler/diesel oxidation catalyst could provide a cheaper functional unit. - Life of diesel oxidation catalyst with metal substrate could be 60% higher than the 600,000 km stated ie 1,000,000 km. (14)	Noted.
Widespread use of DOCs will reduce the need for Test and Repair. (14)	Noted - However test and repair programs can be useful in ensuring the ongoing performance of emission control equipment, including DOCs.
DOCs do not necessarily require a well maintained vehicle, however, they are more efficient if it is. (14)	Noted - However the potential for damage to the normal operation of a DOC is likely to be significantly increased with a poorly maintained vehicle.
Use of diesel oxidation catalysts is not restricted to improving older vehicles. (14)	Noted. Diesel oxidation catalysts can offer advantages for new technology vehicles and are likely to be a common method to achieve future new vehicle standards.

ENGINE RETROFITS	
COMMENT	**RESPONSE**
Retrofit of DOCs offer the potential for an incentive based approach to reducing emissions. (14)	The use of an incentive based approach for retrofitting DOCs can be considered by jurisdictions as part of the implementation phase. This is noted in the NEPM.
Greater use of diesel oxidation catalysts should be encouraged as a relatively inexpensive emission control measure for older vehicles. (26)	The NEPM guideline on retrofitting covers this issue.
Retro-fitting a vehicle can result in unexpected complications so any program that is made mandatory must be scrutinised carefully. It is recognised that DOCs are used in US and Europe, but it is preferred that their fitment be a recommendation rather than a regulation. Perhaps incentives can be targeted to urban bus fleets. It is acknowledged that DOCs are tailored to low sulfur level in fuel (which WA has). (27)	Agreed. The need to properly match a DOC to the engine is noted.
It is emphasised that the engine must be in reasonable condition – eg. oil may react to defeat a catalyst. (27)	Agreed. This was noted in the Impact Statement.
The suggestion that companies tendering for Government contracts with trucks not built to current emission standards and/or over a certain age either meet the retrofit guidelines or have their engines rebuilt is draconian and misguided. Ultimately, a tender for any Government contract need only demonstrate that the vehicle(s) performs according to the standards employed by the Commonwealth at certification (after allowing for wear and tear and differences between certification and commercial fuels). The performance requirements for the retrofit program are unsubstantiated and necessitate compliance for emissions that, for pre ADR 70/00 vehicles, were not subject to any standard. (25)	The NEPM makes it clear that retrofit and engine rebuild programs are not intended to be widespread programs but rather may be applicable to segments of the fleet where there is a particular air quality issue. As the application of retrofit and engine rebuild programs are design forcing (ie. will require the modification of a vehicle from its original design condition) it is recognised that it would be reasonable to provide some form of incentive for operators involved in these programs. The NEPM sets no requirement regarding the issuing of government contracts. The NEPM guidelines indicate that incentive programs may be appropriate. The use of government contracts is one of a number of possible incentives suggested.
We concur with the draft NEPM, p30, lines 23-25, that traps are not feasible for a retrofit program. (28)	Concurrence is noted.
The potential exists to review installing source country emission calibrations for engines sold prior to ADR70, as another means of improving emissions from in-service engines. This should be limited to	This option was not explicitly addressed in the NEPM strategies, but could be considered by jurisdictions as an alternative to retrofit or rebuild strategies if the emission benefits could be objectively

ENGINE RETROFITS	
COMMENT	**RESPONSE**
electronic engines to reduce tampering (28)	evaluated.
We suggest that there not be PM targets set for DOCs, as DOCs have a minimal impact on the soot component of PM. (28)	While it is recognised that the DOCs deal principally with the soluble organic fraction of the PM and not the carbonaceous part, the NEPM aims to reduce total PM emissions. The NEPM standards reflect international experience which indicate that DOCs are effective at reducing total PM emissions at the levels specified.

INCENTIVES	
COMMENT	**RESPONSE**
Most diesel operators are small businesses with tight margins - they cannot afford downtime or repairs/modifications. Need incentives such as fuel rebates for vehicles fitted with emission reduction devices. This system would: - reflect kilometres travelled for the vehicle - be easily administered - also capture non road users, rail etc. (14)	The NEPM does not exclude the use of such incentives and indicates that they may be necessary, but it is outside the scope of the NEPM to require the use of such incentives.
The current non-metropolitan based fuel rebate creates a non-level playing field. This encourages the use of "cocktail" mixes as substitutes. Fuel rebate based on use of diesel oxidation catalysts would be more equitable and reduce pollution. (14)	The issue of fuel rebates is outside the scope of the NEPM. Diesel rebates are determined under the appropriate Commonwealth Government schemes.

INTEGRITY/SECURITY OF PROGRAMS	
COMMENT	**RESPONSE**
Emission testers should be accredited, this should be included in statutory rules of Road Transport Reform (vehicle standards) 2001. (6)	Jurisdictions implementing a test program will need to undertake quality assurance of test facilities and their operations. This may be done by accreditation or some other system. Jurisdictions may undertake their own testing.
The Association of Australasian Diesel Specialists would be a suitable body to administer industry accreditation. (13)	Jurisdictions implementing a test program will need to undertake quality assurance of test facilities and their operations. The experience of bodies such as the Association of Australasian Diesel Specialists will be important when assessing programs.
Without random testing, diesel oxidation	Noted - Options to avoid this practice will

INTEGRITY/SECURITY OF PROGRAMS	
COMMENT	**RESPONSE**
catalysts may be fitted for annual test only, then moved to another vehicle. (14)	need to be considered by jurisdictions as part of the implementation process.

IMPACT STATEMENT	
COMMENT	**RESPONSE**
The Impact Statement needs further consideration of the costs that the NEPM will impose on small business and rural stakeholders. (11)	The diverse potential impacts on small business are noted. It is expected that jurisdictions will focus on urban areas in implementing the NEPM.
While not possible in quantitative terms, the Impact Statement needs to provide more information to assist policy makers to make decisions, with guidance, about relative costs and benefits. (11)	The key public and private benefits and costs asscoiated with meeting in-service standards are discussed in the Impact Statement. While data on the magnitude of the improved fuel economy across the Australian diesel fleet are not available, it is estimated that the benefits associated with each 1% improvement in fuel economy (across the fleet) would result in annual benefits in the vicinity of $300 million over 15 years.
The Impact Statement covers both NEPM and In-service standards, whereas the title refers only to the NEPM - this may be misleading for some. (10)	The Impact Statement was prepared to meet the statutory requirements of both NRTC and NEPC. This is made clear in the Executive Summary.
While NO_x may be reduced to a certain extent through the programs listed, the impact of increased diesel vehicle numbers and diesel vehicle VKT will see an increase in total NO_x emissions. (19)	Emission projections show that in spite of increased kilometres travelled, NO_x emissions will decrease, largely due to more stringent new vehicle emission standards required by the new Australian Design Rules.
The draft NEPM and Impact Statement appear to be well researched. (10)	Comments are noted.
Options listed under 4.2 provide a punitive rather than economic solution. Regulations would be retrospective. (14)	It is recognised that there are a range of "carrots and sticks" available to regulators and a comprehensive regulatory framework to control emissions is likely to include a range of strategies. None of the strategies listed under 4.2 are retrospective.
Cleaner fuel will deliver its own benefits in addition to allowing newer technologies. (14)	Agreed. Fuel quality is being addressed via the Commonwealth fuel standards process.
Does not consider the effect of fuel adulterations prompted by increased costs	The issue of fuel adulteration is important for emission control technology. However it

IMPACT STATEMENT	
COMMENT	**RESPONSE**
imposed by the programs. (14)	is addressed under the Commonwealth fuel standards process.
It would be useful for the Impact Statement to at least acknowledge any potential benefit of the proposed NEPM for greenhouse gas emissions, even if precise measurement is not possible. (21)	It is agreed that there are potential greenhouse gas emissions reductions from the introduction of the NEPM. There are insufficient data available to quantify these benefits.
The Impact Statement notes that along with the purchase and installation costs of engine retrofits, maintenance of the devices is also a cost which would be incurred by vehicle owners. However, on the summary table of costs, maintenance costs are given as zero or 'not applicable'. This should be rectified. (21)	This inconsistency is recognised. While the maintenance costs associated with engine retrofits have not been quantified, it is expected that there will be minimal maintenance costs associated with retrofit of oxidation catalysts.
The costs identified in the Impact Statement do not appear to include an estimate of some administrative costs such as training of the vehicle repair industry or a communications program. If these costs are assumed to be marginal, then this should be stated. (21)	It is recognised that administrative costs, including costs of training of the vehicle repair industry and the costs of a communication program, are likely to be incurred by jurisdictions in the implementation of the NEPM. These costs are program specific and will depend on the approach taken by individual jurisdictions in the implementation of the NEPM. As such, it will be up to the individual jurisdictions to consider and estimate these costs when determining the most cost-effective method(s) of implementation.
The cost estimates for test and repair programs should briefly discuss set up costs of facilities, and discuss the funding available from the Commonwealth to cover this initial outlay. (21)	The implementation and annual operating costs of vehicle testing facilities are provided in Appendix 1 of the Impact Statement. Costs are provided for both light and heavy duty vehicles using single lane mobile testing units and for a two lane fixed testing facility. The Commonwealth, through the '*Measures for a Better Environment*' package, has committed a total of $40 million towards the establishment of diesel vehicle testing capabilities across all jurisdictions.
The analysis of the trends in emission concentrations is limited to analysis of past trends. No estimation of projection of future trends is provided. This is a major omission.	The NEPM requires these assessments to be made and reported to NEPC. NEPC preparatory project 1 developed a model to project future emissions based on

IMPACT STATEMENT	
COMMENT	**RESPONSE**
From a policy perspective, it is important that we determine the likely state of future ambient concentrations to determine the degree to which further interventions are required. (23)	known trends and is available for use by jurisdictions. The assumptions in this model can be modified as new information becomes available. Monitoring and projections of ambient concentrations is the responsibility of individual jurisdictions.
It is recognised that some health benefits from diesel emission reduction are difficult to quantify. A watching brief should be kept on current research into health effects of emission components (eg ultrafine particles). (24)	Agreed. NEPC is currently considering the need to address ultrafine particles and air toxics. The five year review of this NEPM will allow consideration of any future developments in this area.
Conclusive cost/benefit data for NEPM strategies are not available (in-service emission testing in particular). The approach adopted in the Impact Statement appears to be reasonable, however, it is expected that jurisdictions will need to undertake substantial work to assess the contribution of diesel emissions to air quality problems and establish effective solutions. (24)	Agreed. Not all costs are available, especially given the range of options that jurisdictions have for implementing strategies to manage emissions from the in-service diesel fleet. It is anticipated that jurisdictions will undertake their own assessments to the level of detail required for strategic planning at the airshed level.
The cost/benefit analysis presented in the Impact Statement suggests that expected annual benefits totalling $33 million would be substantially exceeded by an annual cost of $66 million. This cost pertains solely to the repair of vehicles and does not include other costs such as the cost of testing stations and enforcement. A full assessment of the costs and benefits associated with the proposed NEPM is required if a balanced perspective of the net benefits to the community arising from the NEPM measures is to be attained. (25)	The Impact Statement endeavoured to address as many known costs as possible. It is not possible to detail all cost impacts because jurisdictions have a wide range of options available for implementing any program and local costs, to jurisdictions and to vehicle owners, will vary according to the detail of program implementation. Each jurisdiction will determine the intensity of program implementation required to meet its air quality goals. As stated in the Impact Statement the actual costs and benefits associated with implementation will depend on the choice of the program(s) and the timing of their implementation. It needs to be recognised that any change to the parameters of the program will affect both costs and benefits. To address this a guide to the potential unit costs of key cost components for each NEPM guideline was provided in the Impact Statement. This was intended to assist policy

IMPACT STATEMENT	
COMMENT	**RESPONSE**
	makers in each jurisdiction in designing, and determining the total costs of any emission reduction program. It is also not possible to place a monetary value on all of the benefits of a program. Many of these benefits, such as an improvement in amenity, are important and need to be considered when deciding on the merits of a program. It is therefore possible the value of the benefits is underestimated given the difficulty in assigning dollar values to benefits such as improved amenity etc. It is also important to note that no cost will be incurred by vehicle operators unless a jurisdiction determines to implement a specific program. It is envisaged that each jurisdiction would develop detailed cost analyses when designing programs and conduct appropriate consultations with stakeholders and the community prior to the introduction of any program.
Any action taken to address the air quality needs to be supported irrespective of the objections to the cost of compliance. (20)	Noted.
The Impact Statement provides a good background to the development of a diesel vehicle emissions NEPM and the preferred approach to be taken. (21)	Support is noted.
I believe you can't put dollar figures on the costs and benefits of setting in-service emission standards. The health hazards from diesel emissions have been well documented in the literature for some time and have been clearly identified in the draft NEPM. I strongly believe cost should be of a secondary importance. (17)	Health and other public benefits are often difficult to quantify, especially in economic terms. The Impact Statement makes every attempt to quantify costs where possible.
We support the cost benefit approach utilised in the Impact Statement. It provides a good indication of the likely strengths and weaknesses of each program as well as cost information where available. (21)	Support is noted.

NEPM IMPLEMENTATION	
COMMENT	**RESPONSE**
It is noted that the draft NEPM proposes no particular source of revenue to cover the very substantial establishment and ongoing costs involved in implementing the NEPM at a practical level in the jurisdictions. It is reasonable to assume that the cost of its application will be sought to be recovered from those to whom the NEPM will apply. The costs of implementing the NEPM will be to the detriment of either the business owning the vehicles or the consumers of the products and services of that business and it is critical that a transparent cost/benefit analysis is undertaken and available to public view before the implementation phase. At the State implementation stage, it is vital that meaningful consultation is undertaken with relevant interest groups to ensure the correct areas are being targeted in cost effective ways and that unintended consequences and costs are not imposed. (18) To implement the testing regime (to the DT80 test) appropriate infrastructure is required in addition to resources to run this infrastructure. Even if funds are available to assist states to obtain testing equipment and infrastructure, a state's capacity to man the facility may ultimately result in substantially differing facilities between small and large states. This would disadvantage truck owners from WA, who may not be subject to a frequent testing regime, when they travel to the eastern states. (27)	Jurisdictions will need to determine appropriate financing arrangements for programs they develop under the NEPM. A contribution towards program costs by those targeted under the program may be considered as part of this determination. It is important to note that the Commonwealth Government has allocated $40 million over 4 years for the establishment of vehicle testing capabilities to support this NEPM. Consultation is routinely undertaken with interest groups in the development of programs such as these.
Greater resources should be supplied to EPAs and local Government. (1)	Implementation is an issue for each jurisdiction to consider. Agencies may require resources to implement the NEPM. The Commonwealth Government has $40m available under '*Measures for a Better Environment*' for implementing testing capabilities in conjunction with the Diesel NEPM.
As the NEPM does not address issues of compliance and enforcement, it is likely that	It is correct that the impact of the NEPM will depend on the action taken within a

NEPM IMPLEMENTATION	
COMMENT	**RESPONSE**
much of the impact of the measures will be dependent on the manner in which a jurisdiction seeks to implement them. (18)	jurisdiction.
Implementation should be compulsory for Jurisdictions. (2)	It is mandatory for each jurisdiction to report on the need to address diesel emissions and the actions taken. Jurisdictions make decisions on implementation based on air quality needs in their jurisdiction.
While we support the principles identified in the NEPM, there is concern that the value of the NEPM seems to be in providing guidance for action by jurisdictions and requiring jurisdictions to report on their actions including effectiveness. There could be considerable variation in the action jurisdictions take in implementing the NEPM. We are keen to see effective measures implemented to achieve real emission reductions. (26)	The NEPM acknowledges that there are significant differences in air quality and in the impact of diesel vehicles on air quality across urban areas. The NEPM is designed in a manner that allows jurisdictions to develop appropriate responses to their air quality issues while ensuring consistency in the evaluation of vehicle performance.
We also remain concerned at the means by which state jurisdictions will adopt any new emissions testing regime. Clearly we agree coverage by an accreditation scheme is the best approach and to that end, as you know, the ATA is proposing the adoption of its Environmental Management System (EMS) as an additional module to the TruckSafe product already in operation. For that to be effective full governement support by way of exemptions and incentives will be required. Beyond that however, there remains a risk that of different practices being adopted by states which could cause further inconsistencies. (25)	The accredited maintenance guideline of the NEPM provides for programs such as EMS. The NEPM is currently the only legislation that provides a framework for national bodies such as ATA to work with states to develop a nationally consistent accreditation program. The NEPM also provides for the use of incentives in the development of such programs should jurisdictions agree they are required.
Allowing jurisdictions to implement strategies and/or standards as deemed appropriate has the potential to undo any benefits that may be achievable under a nationally consistent approach. Constitutional powers should be used to regulate the introduction of these strategies and standards. (4)	The standards are set nationally. The NEPM allows for flexibility to implement the strategies set out in the NEPM in order to best address the air quality problems of each jurisdiction. We recognise that this flexibility may mean that different jurisdictions may address diesel emissions using different programs. This flexibility allows for cost effective and targeted responses to the air quality pressures of each airshed.
Re-registration should be subject to passing emission testing (2)	Linking registration to emission testing may be an effective way to enforce implementation. Implementation is an issue

NEPM IMPLEMENTATION	
COMMENT	**RESPONSE**
	for jurisdictions to consider and some jurisdictions may consider making registration subject to meeting the in-service standards.
Problems of poor maintenance will not be fixed unless there is some incentive or regulation to make people respond. Unless all states bring in regulations that require testing of at least excessive smoky vehicles, then all of the work that NEPC has done will be wasted. (7)	The NEPM requires that jurisdictions implement sufficient programs to address air quality issues in that jurisdictions. This is likely to result in a mix of voluntary and mandatory programs, where vehicle testing may or may not have a role.
A voluntary approach will not bring about required improvement in air quality. (2)	Each jurisdiction is responsible for determining how to implement the guidelines in the NEPM. Voluntary approaches can be effective, particularly where accompanied by incentives. The mix of voluntary and mandatory approaches will be determined by each jurisdiction.
The NEPM should make it clear that jurisdictions are not required to report for any part of the 2000-01 financial year. The first reporting year should end 30 June 2002. (11)	Agreed. NEPM amended so the first reporting year ends 30 June 2002.
The need for a National policy, focused on compliance is essential so that conformance and uniformity of administration is achieved and where necessary, enforcement. (20)	The in-service emission standards will apply across Australia. However, States and Territories have flexibility in determining the program appropriate for promoting compliance with the standards. A working group is being formed to examine issues such as nationally consistent approaches to enforcement.
Important for uniform national implementation, there should not be scope for local interpretation. (13)	While specific programs may vary between jurisdictions, the in-service standards provide a nationally consistent approach.
There should be no voluntary industry agreements. Voluntary regulation currently exists but has not been able to control emissions. (13)	Voluntary approaches can be successful particularly where combined with incentives.
Support implementation of proposals (1)	Support for the NEPM is noted.
Repairers should be approved by the Association of Australasian Diesel Specialists. NEPC should consider accrediting the Association as an approved repairer of diesel fuel injection systems. (13)	Accreditation of approved repairers will be considered by jurisdictions.

LIST OF SUBMITTORS

Submission No	Submittor
1	Andrew & Carolyn Ryder
2	Friends of the Earth - Southern Tableland
3	Motor Trade Association of SA Inc
4	Victorian Automobile Chamber of Commerce
5	Bus Industry Confederation
6	Mechplant Installations & Repairs
7	Engine Reconditioners Assoc of Australia
8	Kevin Rolfe & Associates
9	Crane Industry Council of Australia
10	Tasmanian Government Agencies
11	Commonwealth of Australia
12	Octel
13	Assoc of Australasian Diesel Specialists (Inc)
14	Exhaust Technologies
15	Minerals Council of Australia
16	AS Harrison
17	T Frances Vessel
18	Extractive Industries Association of SA
19	Warren Godson
20	REI Consulting Services
21	Victorian Government Agencies
22	South Australian Government Agencies
23	Queensland Government Agencies
24	Department of Environmental Protection – WA
25	Australian Trucking Association
26	Conservation Council of WA Inc
27	Transport WA
28	Cummins Engine Company

GLOSSARY

Airshed	An area in which air quality is subject to common influences from emissions, meteorology and topography
Ambient Air NEPM	National Environment Protection Measure for Ambient Air Quality
Ambient air	The external air environment (does not include the air environment inside buildings or structures)
Australian Design Rule	Design standards applying to motor vehicles before they enter the market.
Australian Vehicle Standards Rules	Standards applying to in-service vehicles.
Combined Urban Emissions Drive Cycle	A transient test cycle that simulates a range of driving conditions from congested to open road.
Diesel vehicle	A vehicle registered for use on public roads and powered by a diesel fuelled engine.
DT80	A prescribed short transient test cycle for in-service emissions testing
In-service emissions	Exhaust emissions, excluding emissions of noise, from diesel vehicles in use.
In-service Emissions Standards	The in-service emissions standards for diesel vehicles specified in Australian Vehicle Standards Rules 1999, Rules 147A and 147B.

ACRONYMS

ATA	Australian Trucking Association
ADR	Design standards applying to motor vehicles before they enter the market.
CARB	California Air Resources Board
CUEDC	A transient test cycle that simulates a range of driving conditions from congested to open road.
DEP	Department of Environmental Protection (Western Australia)
EPA	Environmental Protection Authority (Agency)
GCM	Gross combined mass
GVM	Gross vehicle mass
LCVs	Light commercial vehicles (under 3.5 tonnes gross vehicle mass)
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NHVAS	National Heavy Vehicle Accreditation Scheme
NRTC	National Road Transport Commission.
SEPP	State Environment Protection Policy

POLLUTANTS

NO	Nitric oxide
CO	Carbon monoxide
HC	Hydrocarbons
NMHC	Non-methane hydrocarbons
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
O_3	Ozone
PM_{10}	Particles which have an aerodynamic diameter less than or equal to 10 μm
$PM_{2.5}$	Particles which have an aerodynamic diameter less than or equal to 2.5 μm
ppb	Parts per billion
ppm	Parts per million
SO_2	Sulfur dioxide
VOC	Volatile organic compounds
μg/m³	Microgram (1 millionth of 1 gram) per cubic metre

CONSULTATION MEETINGS – DATES, VENUES AND PARTICIPANTS

COMMONWEALTH
Wednesday, 21 March 2001 Canberra

NEW SOUTH WALES
Tuesday, 10 April 2001 Sydney

VICTORIA
Wednesday, 28 March 2001 Melbourne

QUEENSLAND
Monday, 26 March 2001 Brisbane

WESTERN AUSTRALIA
Wednesday, 11 April 2001 Perth

SOUTH AUSTRALIA
Tuesday, 20 March 2001 Adelaide

TASMANIA
Tuesday, 3 April 2001 Hobart

AUSTRALIAN CAPITAL TERRITORY
Wednesday, 21 March 2001 Canberra

NORTHERN TERRITORY
Monday, 9 April 2001 Darwin

PUBLIC CONSULTATION PARTICIPANTS

Environment ACT
ACT Department of Urban Services
ACT Integrated Omnibus Network (ACTION)
ACT Transport Workers' Union & Owner Drivers' Assoc
National Farmers' Federation
Australian Livestock Transporters' Assoc
Environment Australia
NT Dept of Transport and Works
NT Department of Lands Planning & Environment
AANT (NT Automobile Association)
NT Asset Services
Tasmanian Asthma Foundation
Crushed Stone Association
Cement Industry
Bus and Coach Operators
Transport Operators
Diesel Repair Industry
Diesel Parts Suppliers
Vehicle Emissions Testing Consultants
MTA NSW
NRMA Insurance
NSW Taxi Council

Vehicle Inspection Industry
Gas Industry
Victorian Farmers Federation
Victorian Automobile Chamber of Commerce
Colpro Australia
Metropolitan Fire Brigade
Electricity Industry
RACV
Department of Defence
Diesel Engine manufacturers
Diesel vehicle manufacturers
Petrol Industry
City of Darebin
VicRoads
Uni-Melbourne
Energy Supply Industry
WA Chamber of Commerce
WA Transport Forum
WA Department of Environmental Protection
Belmont City Council
Transport WA
WA State Chemistry Laboratories
WA Motor Trades Association
Caloundra City Council
QLD Transport
QFleet
Brisbane Transport
RACQ
CASANZ
Pine Rivers Shire Council
Griffith University
Brisbane City Council
Motor Trades Association Qld
Engine Rebuilders Association Qld
Commercial Vehicle Industry Association SA
SA Motor Trades Association
SA Engine Recondition Association
SA EPA
SAFF
Torrens Valley TAFE
SA Road Transport Association
RAA
SA Local Government Association
SA Water
Environmental consultants
A number of private individuals

PARTICIPANTS IN NEPM DEVELOPMENT

The roles of the following groups in NEPM development can be characterised as follows:

NATIONAL ENVIRONMENT PROTECTION COUNCIL

- initiates the development of the draft NEPM
- approves the release of the draft NEPM and Impact Statement for public consultation
- makes the NEPM

COMMONWEALTH
Senator The Hon Robert Hill (Chair)
Minister for the Environment & Heritage

NEW SOUTH WALES
The Hon Bob Debus MP
Minister for the Environment

VICTORIA
The Hon Sherryl Garbutt MP
Minister for Conservation and Land Management

QUEENSLAND
The Hon Rod Welford/The Hon Dean Wells
Minister for the Environment

WESTERN AUSTRALIA
The Hon Cheryl Edwardes MLA/The Hon Dr J M Edwards MLA
Minister for the Environment/Minister for the Environment and Heritage

SOUTH AUSTRALIA
The Hon Iain Evans MP
Minister for Environment and Heritage

TASMANIA
The Hon David Llewellyn MHA
Minister for Primary Industries, Water and Environment

NORTHERN TERRITORY
The Hon Tim Baldwin MLA
Minister for Lands, Planning and Environment

AUSTRALIAN CAPITAL TERRITORY
Mr Brendan Smyth MLA
Minister for Urban Services

NATIONAL ENVIRONMENT PROTECTION COUNCIL COMMITTEE

- appoints the Project Chair from the NEPC Committee
- appoints the Project Team - experts from jurisdictions
- develops the proposal for the NEPM
- oversees the development of the draft NEPM
- members of NEPC Committee are responsible for consultation in their respective jurisdictions

COMMONWEALTH

Mr Roger Beale (Chair)
Secretary
Environment Australia

Ms Anthea Tinney
Head, Environment Protection Group
Environment Australia

NEW SOUTH WALES

Ms Lisa Corbyn
Director General
Environment Protection Authority

Ms Sue Dawson
Assistant Director General
Environment Protection Authority

VICTORIA

Dr Brian Robinson
Chairman
Environmental Protection Authority

Mr Rob Joy
Executive Director
Environment Protection Authority

QUEENSLAND

Mr John Gilmour
Director (Corporate Performance and Risk)
Environment Protection Agency

WESTERN AUSTRALIA

Dr Bryan Jenkins
Chief Executive Officer
Department of Environmental Protection

Mr Rob Sippe
Director Policy Coordination
Department of Environmental Protection

SOUTH AUSTRALIA

Mr Max Harvey/Mr Nicholas Newland
Acting Executive Director/Executive Director
Environment Protection Agency

Ms Leanne Burch
Manager, Legislative Reform
Environment Policy Division,
Department of Environment and Heritage

TASMANIA

Mr Warren Jones
Director of Environmental Management
Department of Primary Industries, Water & Environment

Dr Frank Cattell
Manager Operations
Department of Primary Industries, Water & Environment

NORTHERN TERRITORY

Mr John Pinney
Secretary
Department of Lands, Planning & Environment

Ms Barbara Singer
Assistant Secretary
Department of Lands, Planning and Environment

AUSTRALIAN CAPITAL TERRITORY

Ms Elizabeth Fowler
Director, Environment Protection
Environment ACT

Mr Gary Croston
Manager, Environment Protection
Environment ACT

NEPC SERVICE CORPORATION
Dr Bruce Kennedy
Executive Officer

OBSERVER
Mr John Pritchard
National Policy Coordinator
Australian Local Government Association

PROJECT CHAIR
- responsible to NEPC and NEPC Committee for overall development of NEPM

Ms Anthea Tinney (Environment Australia)

PROJECT MANAGER
- responsible for managing the development of the NEPM and Impact Statement. The Project Manager is also the Executive Officer for the NGO Advisory Group and Jurisdictional Reference Network

Mr Marc Thompson (NEPC Service Corporation)

PROJECT ASSISTANCE
- provide assistance to the Project Manager and Project Team

Mr Haemish Middleton/Ms Lisa Davies (NEPC Service Corporation)

Ms Monina Gilbey (NEPC Service Corporation)

PROJECT TEAM
- develops draft NEPM and Impact Statement under the guidance of the Project Chair and Project Manager

Mr Bruce Dowdell (NSW RTA)
Mr Tim Eaton (National Road Transport Commission)
Ms Helen Fitzgerald (NSW EPA)
Mr Matthew Minchin / Mr Doug Munro (EPA Victoria)
Ms Vicki Ratliff (Environment Australia)
Mr Jon Real (Department of Transport and Regional Services)

CONSULTANTS

John Cox and Apelbaum Consulting Group	NEPC Project 1
Nelson English, Loxton and Andrews	NEPC Projects 5 and 6
NSW Environment Protection Agency	NEPC Project 2.1
Parsons Australia Ltd	NEPC Projects 2.2 and 7
VIPAC Engineers and Scientists	NEPC Project 4

JURISDICTIONAL REFERENCE NETWORK

- comprises one government officer from each jurisdiction
- conducts whole-of-government consultation
- usually conducts public consultation
- provides policy advice and feedback to Project Team through the NEPC Service Corporation
- supplies appropriate data and information to Project Team to assist NEPM development

COMMONWEALTH
Ms Christine Schweizer/ Ms Vicki Ratliff
Environment Australia

NEW SOUTH WALES
Ms Suzanne Quigley
Environment Protection Agency

VICTORIA
Ms Tracey Mitchell
Environment Protection Authority

WESTERN AUSTRALIA
Mr Anthony Stuart
Department of Environmental Protection

QUEENSLAND
Mr Scott McDowall
Environmental Protection Agency

SOUTH AUSTRALIA
Mr Tony Circelli
Environment Protection Agency

NORTHERN TERRITORY
Mr Randall Scott
Department of Lands Planning and Environment

TASMANIA
Dr Frank Carnovale
Dept of Primary Industries Water & Environment

AUSTRALIAN CAPITAL TERRITORY
Mr Geoff Wells
Environment ACT

NATIONAL ROAD TRANSPORT COMMISSION
Mr Tim Eaton