FREIGHT ON RAIL GROUP

**Submission in response to:**

# Clean Air for NSW Consultation Paper

**27 January 2017**

This document has been prepared by the Freight on Rail Group (the Group). The Group is a rail freight focussed industry group established to engage with Government and key stakeholders on major public policy issues. It consists of the seven major rail freight businesses in Australia:

**Aurizon**
Aurizon has rail and road-based freight and infrastructure operations across Australia. Aurizon operates above-rail freight services from Cairns through to Perth, and manages the Central Queensland Coal Network made up of approximately 2,670km of heavy haul rail infrastructure.

**Australian Rail Track Corporation (ARTC)**
ARTC has responsibility for the management of over 8,500 route kilometres of standard gauge interstate track across Australia. ARTC also manages the Hunter Valley coal rail network, and other regional rail links.

**Brookfield Rail**
Brookfield Rail manages and operates a 5,500 kilometre open access, multi-user rail freight network extending throughout the southern half of Western Australia, providing access for intermodal, iron ore, grain, alumina and various other bulk commodities.

**Genesee & Wyoming**
G&W is a global vertically integrated rail freight company with a large Australian presence in SA, NT, Victoria and NSW. G&W owns nearly 5,000 kilometres of track in SA and NT, including the 2,200-km Tarcoola-to-Darwin railway.

**Pacific National**
Pacific National is one of the largest providers of rail freight services in Australia, providing intermodal, coal and bulk rail haulage services throughout Australia.

**Qube**
Qube is Australia's largest integrated provider of import and export logistics services. It offers a broad range of logistics services with a national footprint and a primary focus on markets involved in international trade in both the bulk and container markets.

**SCT Logistics**
SCT is a national, multi-modal transport and logistics company. It operates its own intermodal rail services from the eastern States to Perth, while also providing bulk rail haulage services. It has facilities in Brisbane, Sydney, Parkes, Melbourne, Adelaide and Perth.

**Key contacts for this document:**


| | |
|---|---|
| Aurizon: | Patrick Coleman, Principal Policy Adviser<br>07 3019 7747, Patrick.Coleman@aurizon.com.au |
| ARTC: | Adrian Teaha, Manager Industry Policy & Strategy<br>08 8217 4397, ATeaha@ARTC.com.au |
| Pacific National: | Stuart Ronan, Manager Access and Regulation<br>02 8484 8056, stuart_ronan@pacificnational.com.au |

**Executive Summary**

The Freight on Rail Group (FORG) supports the objective of the New South Wales (NSW) Government to improve air quality in the state.

FORG also recognises the benefits of developing a clean air plan, including the potential to provide greater certainty for industry with regard to operational planning and investment considerations.

FORG believes that the preparation of a long term plan is an important and positive development for the management of air quality in NSW, but we propose that the identification of priority areas and potential actions needs to be the result of a solid evidence-based process.

FORG therefore endorses the approach presented in the Clean Air for NSW Consultation Paper (the Paper) to determine priority areas, namely "that they:

- Target emission sources for which there is clear evidence that those sources have large impacts on air quality and human health; and

- Have the potential to provide the most cost-effective responses to identified pollution and health issues and deliver the best net gains for the community, based on the findings from economic studies"[1].

Consistent with this approach, FORG has included in this submission a set of suggested principles to guide the identification of priority areas for action.

In relation to diesel locomotive emissions, analysis of the NSW Environment Protection Agency (EPA) data shows that:

- Diesel locomotive emissions are not in the top 10 human made sources of emissions in NSW for particulate matter.

- Locomotives contribute just 0.2% of total PM10 emissions in the NSW GMR and 0.6% of PM2.5 emissions, as shown in the figures provided on page 8 of this submission.

Based on this evidence that particulate emissions from diesel locomotives represent a negligible component of overall particulate emissions, FORG does not support the position proposed in the Paper that emissions from diesel locomotives should be a priority area for action by the Government[2].

Although NSW EPA data clearly demonstrates that emissions from diesel locomotives are not a major contributor to particulate emissions, FORG acknowledges the community concerns in this area.

Reducing fuel usage and emissions have been a key focus for the members of FORG over recent years, with significant investments being made to reduce locomotive diesel consumption, thereby reducing associated emissions at the point of production.

Furthermore, FORG notes that rail freight operators have worked over the last 12 months to develop a national industry standard and associated code of practice for diesel emissions from existing and new locomotives. The standard has been submitted to the Rail Industry Safety and Standards Board (RISSB) and is to be published as Australian Standard AS 7512.

The development of this standard and the accompanying code of practice represents an industry-led approach to managing emissions from diesel locomotives over the next ten years and beyond.

[1] NSW Environment Protection Agency and Office of Environment and Heritage, *Consultation Paper: Clean Air for NSW*, October 2016, p. 27

[2] Ibid, p. 27.

The standard and code of practice demonstrates the commitment of rail freight operators to managing environmental impacts and to improved practices and reductions in locomotive emissions.

In relation to coal dust on the Hunter Valley rail corridor, studies undertaken by the NSW Chief Scientist and Engineer and others have concluded that long term average air quality (the focus of Clean Air for NSW) is no different to other parts of the region. In the absence of clear evidence suggesting there is an air quality issue around the rail corridor, the listing of this planned work as an individual priority appears not supported by FORG, especially when tested against the criteria presented in the Paper[3].

Based on the evidence available relating to diesel locomotives and coal dust respectively, FORG submits that the Government should determine:

- That emissions from diesel locomotives should not be classified as a priority area or source of emissions for improving air quality in NSW.
- That it should specifically note as part of its Clean Air for NSW process the proactive development by the rail freight industry of a national diesel emissions standard, and that this demonstrates that no regulatory actions are required by Government and/or the NSW EPA.
- That coal dust should not be identified as a priority for regulatory action in NSW.
- That in relation to coal dust and the Hunter Valley rail corridor, further monitoring and studies are needed, consistent with the conclusion of the NSW Chief Scientist and Engineer.
- That a Government-industry working group be formed to contribute to and inform the ongoing monitoring and further studies of coal dust on the Hunter Valley corridor.

We suggest that the broader benefits of using rail freight compared to transporting freight by road should be fully considered as part of the Clean Air for NSW consultation process.

Increasing the use of rail freight would promote the objective of improving air quality. The Clean Air for NSW consultation paper recognises this environmental benefits of rail freight due to the fact that "each freight train is equivalent to approximately 150 semi-trailers, and transporting freight by rail generates only one third of the greenhouse gases produced by road transport"[4].

In addition, we believe the Government should take further policy actions to increase the utilisation of rail freight recognising the substantial environmental, safety, economic and community benefits the increased use of rail offers, and consistent with the Government's transport policy priority to shift more freight onto rail. We recognise that important initiatives have already been introduced to support this objective in NSW and that significant progress has already been made on key transport corridors.

FORG has appreciated the opportunity to respond to the Paper. If it would be helpful to the further consideration of the issues raised in this submission, FORG would be pleased to participate in the planned 2017 Clean Air Summit and the subsequent process whereby the Government will set priority areas and longer term directions for air quality management in New South Wales through to 2027.

[3] NSW Environment Protection Agency, Consultation Paper: Clean Air for NSW, October 2016, p. 27

[4] Ibid, p. 45

**The environmental, economic and community benefits of the rail freight industry**

Rail freight operations provide major environmental, safety and community benefits compared to the use of road freight. These benefits include:

- The Energy Efficiency Exchange reports that "rail freight transport emits 75 per cent less greenhouse gas emissions per tonne of freight moved compared to the road freight transport sector"[5].

- Road accidents involving trucks result in costs that are 10 times higher than the costs of rail freight accidents, due to rail being a far safer mode[6].

- Rail freight reduces traffic congestion with one freight train having the capacity to remove 100 trucks from the corresponding road corridors.

FORG submits that it would be important for the Government in determining priority areas for proposed actions to improve air quality to take into account other areas of Government policy.

This is particularly the case regarding the Government's policy to increase the proportion of freight carried by rail, which is positive in terms of environmental impacts, social amenity (i.e., congestion) and community safety.

FORG notes in this context that the Paper states:

"……..Putting freight on trains is recognised as being good for our economy, good for our environment and good for road users. Each freight train is equivalent to approximately 150 semi-trailers, and transporting freight by rail generates only one third of the greenhouse gases produced by road transport. Enhancing the capacity of the rail freight network through the NSFC Program (i.e., the Northern Sydney Freight Corridor) will allow rail to be more competitive with road transport for certain types of freight and cut more than 20,000 heavy vehicle road trips per year within 15 years. It will reduce diesel use by almost 40 million litres and greenhouse gas emissions by more than 100.000 tonnes each year"[7].

Increasing the overall proportion of freight carried by rail compared to road would be consistent with an important transport priority for the NSW Government, as stated in the 2013 *NSW Freight and Ports Strategy*:

"Opportunities exist to shift more freight onto rail and this remains an important priority for the NSW Government[8]."

This policy includes a target to double the proportion of freight carried by rail to and from Port Botany between 2013 and 2020[9]. The rail corridors used to transport containers to and from Port Botany include regional rail infrastructure. The NSW Government has already introduced initiatives that are contributing to meeting this transport policy objective. Aligning environmental and transport policy settings towards this objective would make a vital contribution to achieving this target and realising significant environmental, safety and congestion benefits in both urban and regional parts of NSW.

**General Principles to guide policy and regulation relating to air quality**

FORG proposes that the Government adopt a set of clear principles designed to best achieve its air quality goals, focusing on improved community outcomes.

---

[5] The Energy Efficiency Exchange website: http://eex.gov.au/sectors/transport/rail-freight-transport

[6] Deloitte Access Economics for The Australasian Railway Association, *The True Value of Rail*, 2011

[7] NSW Environment Protection Agency and Office of Environment and Heritage, *Consultation Paper: Clean Air for NSW*, October 2016, p. 45

[8] New South Wales Freight and Ports Strategy, November 2013, p. 19.

[9] Ibid, p. 24.

Drawing on the 2007 COAG agreement on Best Practice Regulation, as well as the Government's "Guide to Better Regulation" and its "Seven principles of better regulation", FORG proposes that the Government endorse the following principles as part of its "Clean Air for NSW" consultation process and more generally:

1. Proposed actions in support of objectives should focus on rigorously determined priority areas that will deliver the maximum immediate benefits to the community at the lowest possible cost to industry.

2. Government and industry should seek to work together to develop appropriate solutions (including potential voluntary industry codes) for addressing air quality issues.

3. Regulatory action should only be adopted where it is demonstrably required.

4. If regulation is required, it should be:

    a. Founded on a rigorous, transparent and evidence-based decision making process, with transparent dispute settlement arrangements.
    b. Proportionate to the demonstrated risks.
    c. Deliver cost effective outcomes for the impacted industries and the overall community.
    d. Have regard to the impact on other relevant areas of Government policy, as well as potential economic and social impacts.

In relation to dispute resolution arrangements, these arrangements should allow an organisation or industry to have access to a readily available mechanism to review proposed regulatory requirements.

In addition, FORG believes it is important to ensure that all significant environmental, economic and social impacts of proposed environmental actions are fully assessed, and take into account the relevant industry context and potential implications for other policy settings.

FORG notes in this context that the governance of regulatory arrangements is currently under review by the Independent Review of the NSW Regulatory Policy Framework.

FORG suggests that the review, in taking account of important areas of regulation, consider the current environmental governance arrangements and structures.

We further propose that this include the prospect of the introduction of a whole-of-government assessment and decision making process for environmental regulation.

A whole of government approach should involve rigorous consideration of the full details of proposals to introduce new environmental measures, and such as approach should ensure that the potential impact of such proposals on other relevant areas of Government policy are fully considered.

It is also important to consider the principle of proportionality in relation to the impact of the rail freight industry in the context of overall emissions, as well as the determination of priority areas for initiatives to improve air quality in NSW.

The use of rail to carry freight involves substantially less emissions compared to carrying the same freight by road. Rail freight also provides substantial safety improvements compared to road freight.

Therefore, using the example of rail freight transport, imposing additional costs on this industry would also result in additional costs to the community.

FORG therefore submits that the cost of potential actions in this area would not be proportionate to the potential environmental gains.

**Improving air quality: Identification of priority areas**

FORG endorses the position in the Paper that:

"*Actions that will be prioritised under Clean Air for NSW will reflect our understanding that the greatest health benefits will come from actions that achieve sustained reductions in long-term exposure of large populations to air pollution such as fine particles*"[10].

FORG also endorses the approach presented in the Paper for determining priority areas, noting that:

"*the emission and exposure reduction actions identified in this Clean Air for NSW Consultation Paper have been prioritised for further investigation, generally on the basis that they:*

- *Target emission sources that have large impacts on air quality and human health, based on the evidence, and*

- *Have the potential to provide the most cost-effective responses to identified pollution and health issues and deliver the best net gains for the community, based on the findings from economic studies*"[11].

In relation to rail freight transport, consistent with the approach outlined in the Paper, we support having a focus on what the evidence shows.

An analysis of EPA data on page 8 of this submission shows that:

- Diesel locomotive emissions are not in the top 10 human made sources of emissions in NSW for particulate matter (PM10 & PM2.5) as shown in figures 1 and 2 on page 8 of this submission;

- Locomotives contribute just 0.2% of total PM10 emissions in the NSW GMR and 0.6% of PM2.5 emissions as also shown in figures 1 and 2 on page 8;

In addition, major studies undertaken for the Department of Environment and the EPA & Health Department do not list locomotives as a priority area. These studies are:

- *Air Pollution Economics: Health Costs of Air Pollution in the Greater Sydney Metropolitan Region* prepared for the (then) Department of Environment and Conservation, 2005.

- Woolcock Institute of Medical Research, Centre for Air Quality and Health Research and Evaluation (CAR), *Review of the health impacts of emission sources, types and levels of particulate matter air pollution in ambient air in NSW*, produced for the NSW EPA and the NSW Ministry of Health, Environmental Health Branch, December 2015.

In the case of oxides of nitrogen, total emissions from diesel locomotives are considerably less than total emissions from diesel road vehicles.

FORG therefore proposes that, based on the evidence summarised above and on page 8 of this submission, emissions from diesel locomotives should not be included as a priority area or source of emissions by the NSW Government and the NSW EPA.

[10] NSW Environment Protection Agency and Office of Environment and Heritage, *Consultation Paper: Clean Air for NSW*, October 2016, p. 10
[11] Ibid, p. 27.

**Figure 1: Sources of PM2.5 in the NSW Greater Metropolitan Region (GMR) 2008**[12]

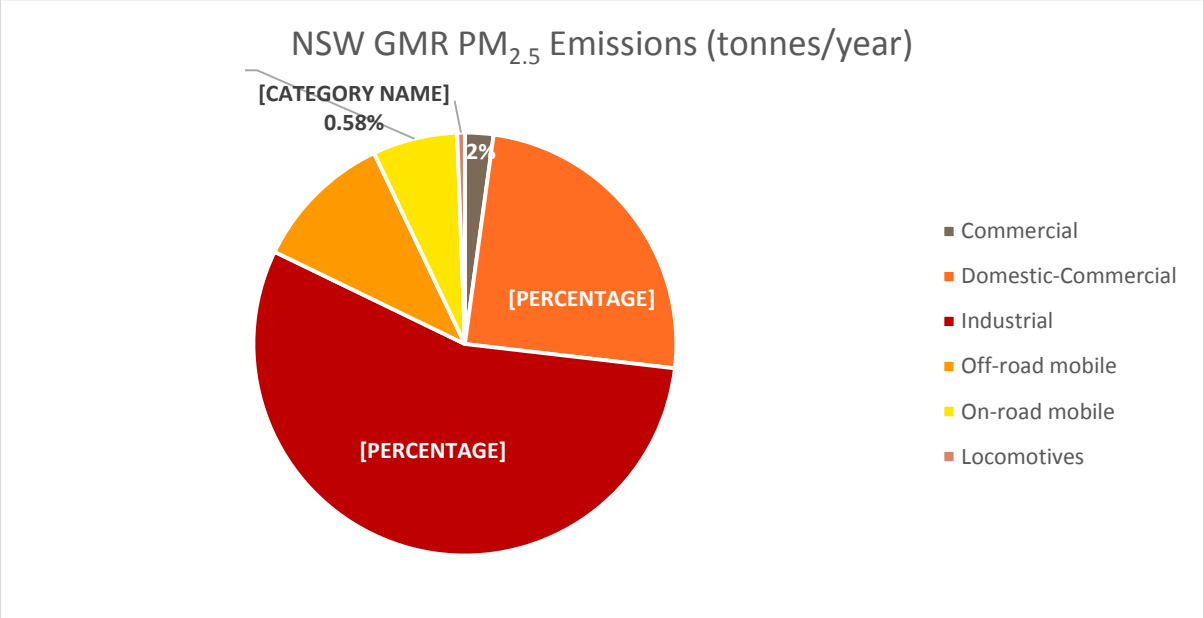
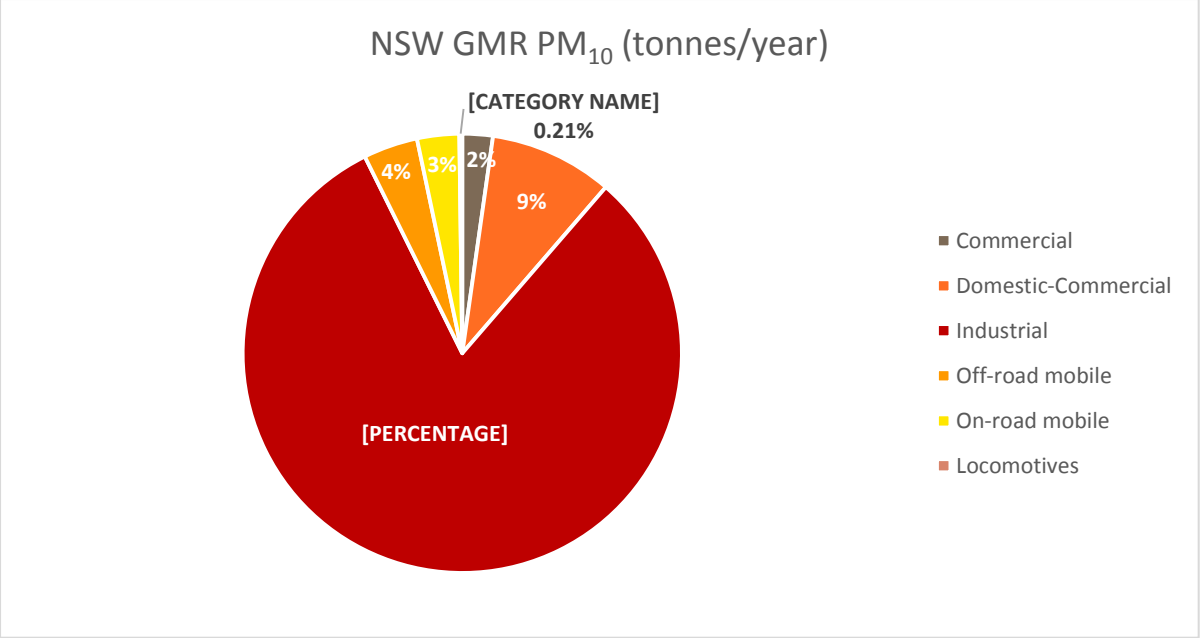



**Figure 2: Sources of PM10 in the NSW Greater Metropolitan Region (GMR) 2008**[13]




The assessment of FORG is that particulate matter emissions from diesel locomotives in the greater metropolitan region (GMR) of New South Wales represent a negligible component of overall particulate emissions. This assessment is supported by the figures 1 and 2 above.

**Industry initiatives undertaken to manage diesel locomotive emissions**

[12] Adapted from NSW Air Emissions Inventory for the Greater Metropolitan Region in New South Wales 2008, Table ES-4,http://www.epa.nsw.gov.au/resources/air/120255AEITR1NatHuman.pdf & 'Scoping Study of Potential Measures to Reduce Emissions from New and In-Service Locomotives in NSW and Australia', ENVIRON, 2013, Table 24

[13] Adapted from NSW Air Emissions Inventory for the Greater Metropolitan Region in New South Wales 2008, Table ES-4,http://www.epa.nsw.gov.au/resources/air/120255AEITR1NatHuman.pdf & 'Scoping Study of Potential Measures to Reduce Emissions from New and In-Service Locomotives in NSW and Australia', ENVIRON, 2013, Table 24

Although NSW EPA data clearly demonstrates that particulate emissions from diesel locomotives are not a major contributor to overall particulate emissions, taking account of community concern is an important consideration for rail freight operators.

As a result, reducing fuel usage and emissions have been a key focus for freight rail operators over recent years, with significant investment being undertaken to reduce locomotive diesel consumption, thereby lowering associated emissions from rail freight services.

Importantly, FORG notes that rail freight operators have worked for more than 12 months to develop a national industry standard and associated code of practice for diesel emissions from existing and new locomotives.

The agreed standard has been agreed by rail freight operators and submitted to the Rail Industry Safety and Standards Board (RISSB). The development of an agreed standard represents an industry-led approach to managing emissions from diesel locomotives over the next ten years and beyond.

The standard and the accompanying code of practice demonstrate the commitment of rail freight operators to managing environmental impacts and contributed to improved practices and reduced emissions. The standard will be formalised and published as Australian Standard AS 7512. The key features of this standard and the accompanying code of practice are set out in Attachment A.

**Coal dust**

Minimising exposure to coal dust along the Hunter Valley rail corridor has been included as a priority action in the Consultation Paper. However, FORG submits that there is not a sufficient evidence base for this proposal.

The Paper refers to studies undertaken by the NSW Chief Scientist and Engineer.

Our members have proactively supported these studies together with a number of other scientific studies on the impact of coal dust from rail transport on air quality in the Hunter Valley.

The Hunter Valley region is one of the most densely monitored and tested areas in Australia, if not the world. The monitoring and studies relating to the region include the Upper Hunter Air Quality Monitoring Network, the Upper Hunter Valley Particle Characterisation Study, the Lower Hunter Particle Characterisation Study which was led by the Commonwealth Scientific and Research Organisation (CSIRO) and the Australian Nuclear Science and Technology Organisation (ANSTO), and the Lower Hunter Dust Deposition Study.

These monitoring initiatives and studies, as well as rail corridor monitoring, have shown that coal could contribute at most 10 per cent of total PM2.5 and PM10 particles. FORG is supportive of further monitoring to confirm more specifically the contribution of coal to general dust on the rail corridor.

None of these studies has indicated long term average air quality is different to other parts of the region.

However, as stated in the Paper, the Chief Scientist concluded that “further targeted studies are needed to better understand the nature and distribution of particles along rail corridors and industry”.

FORG considers that it is not accurate to refer to what the Chief Scientist has proposed as being to ‘minimise exposure to dust emissions in the Hunter rail corridor’. As we understand the Chief Scientist and Engineer’s recommendations, and the associated action presented in the Paper, the proposed work is concerned with ‘monitoring air quality’ on the rail corridor.

At this point in time, there is no available data that indicates a need to, as stated in the Paper, ‘*minimise exposure to dust emissions in the Hunter rail corridor*’. We therefore suggest this description be changed to accurately reflect the proposal to monitor air quality.

FORG supports the conclusion of the Chief Scientist and Engineer that further monitoring studies are needed, and would be pleased to work with the NSW Government as it responds to the Chief Scientist's recommendations. FORG considers that a Government-industry working group, rather than the proposed Taskforce, would provide an appropriate forum for all parties to become involved in what is undeniably important work for the rail corridor and the broader coal chain.

In the absence of evidence suggesting there is an air quality issue around the rail corridor, FORG does not support the inclusion of a priority action in the Consultation Paper to 'Manage dust emissions in the Hunter Rail corridor'.

FORG therefore recommends that the proposal to 'manage dust emissions in the Hunter rail corridor' be removed as standalone priority action. Instead, the proposal of the Chief Scientist for further monitoring around the rail corridor should form part of future air quality monitoring in NSW.

**Conclusion**

NSW EPA data demonstrates that particulate emissions from diesel locomotives represent a negligible component of overall particulate emissions in NSW, and therefore should not be identified as a priority area, and not a priority source of emissions in the state.

FORG members, however, recognise community concerns in this area and, as a result, has taken a number of initiatives over recent years to reduce fuel consumption in its locomotive fleet, thus reducing emissions related to rail freight operations.

Over a period of more than 12 months, rail freight operators have proactively and voluntarily worked to develop an industry standard and code of practice for managing emissions from diesel locomotives. The agreed standard has been submitted to RISSB for publication as Australian Standard AS7512.

This industry-led approach to the development of a standard for locomotive emissions demonstrates the commitment of freight rail operators to reducing emissions, despite locomotive emissions accounting for a negligible component of overall emissions in NSW.

In relation to coal dust, FORG supports the conclusion of the Chief Scientist and Engineer that further monitoring studies are needed. We are willing to work closely with the NSW Government as it responds to the Chief Scientist's proposals. However, we suggest that a Government-industry working group rather than the proposed taskforce would provide an appropriate forum that enables industry to contribute to further monitoring.

In the absence of evidence suggesting there is an air quality issue around the rail corridor, the inclusion of a priority action in the Paper to 'Manage dust emissions in the Hunter Rail corridor' is not supported.

Instead, the Chief Scientist and Engineer's proposal for further monitoring around the rail corridor should form part of any revised air quality monitoring strategies.

FORG also suggests that the Government formally adopt a set of principles for best achieving its Clean Air for NSW goals. FORG believes that the principles outlined in this submission will deliver the best possible community outcomes taking into account environmental, economic and social considerations.

FORG appreciates that this is the first stage of consultation on the Paper. We commend the NSW Government on preparing the Paper and we look forward to ongoing engagement throughout the consultation process.

**Attachment A**

**Summary of rail freight industry Standard and Code of Practice on diesel locomotive emissions**

**Requirements of the agreed industry standard for diesel locomotives**

The standard for diesel locomotive emissions that has been agreed by freight rail operators and is to be published by the Rail Industry Safety and Standards Board (RISSB) as Australian Standard (AS) 7512 requires the following in relation to diesel locomotives:

*New Locomotives* shall operate with diesel particulate emissions less than or equal to 0.27 grams per kilowatt hour.

*Existing Locomotives* shall operate with diesel particulate emissions less than or equal to 0.30 grams per kilowatt hour.

If a locomotive is pre-owned and previously operated outside Australia, if it was manufactured after 1 January 2010, or had covered less than 50,000 kilometres at the date of importation, it shall be considered a new locomotive for the purposes of the standard.

Implementation of these Standard shall be as provided for in the associated Code of Practice. In summary implementation includes:

***Purchase of new locomotives***

Locomotives ordered after the Effective Date of the standard, AS7512, shall be certified to meet or exceed the requirements of the standard.

***Upgrading of existing locomotives***

Operators shall undertake a specified upgrading of existing locomotives which are not already capability compliant at the first major overhaul of a locomotive after the effective date of AS7512[14].

***Reporting***

Operators shall Report to the Reporting Organisation within two months after the end of each calendar year on:

- The number of new locomotives purchased and the number of those meeting the standard;
- The numbers of non-compliant locomotives;
- Of non-compliant locomotives, the numbers that have received a Major Overhaul and an upgrade; and
- Reasons why any non-compliant locomotive did not receive an upgrade.

***General actions to reduce emissions***

The code of practice (CoP) that accompanies AS7512 also requires that locomotive operators take general actions to reduce emissions, including:

- Compliant maintenance arrangements;
- Reduction in unnecessary idling; and
- Actions to reduce emissions of NOx.

[14] In relation to upgrading requirements, there are special provisions that are to apply to locomotives where the distance of operations over a year is relatively low, or where an upgrade kit is not available.

**Estimated benefits of the standard and code of practice**[15]

***Benefits excluding effects of Scrapping***

If no existing locomotives are scrapped, and noting the assumptions above, the benefits are estimated to be:

- 295 locomotives upgraded
- 12.8% reduction in total PM emissions
- 29% reduction in emissions from upgradeable locomotives.

***Benefits including effects of scrapping***

The industry has already scrapped a material number of older locomotives, and subject to economic conditions and industry profitability enabling this to continue, further older parts of the fleet are planned to be scrapped.

It is assumed in the data below that the task currently met by these scrapped locomotives is instead met by new locomotives emitting 0.27kg/MWH or better.

The planned programme will particularly address the non-upgradable locomotives. It is estimated that this could result in larger reductions in industry emissions of PM, as outlined in the following:

- 298 locomotives to be scrapped over the period of the standard and CoP;
- this total includes 188 non-upgradable locos;
- separately, 185 locomotives upgraded;
- 19% reduction in total industry emissions of particulate matter; and
- emissions from non-upgradable locomotives reduced to only 1.2% of total emissions.

**Current status of the standard**

The standard has been submitted to the Rail Industry Safety and Standards Board (RISSB) for publication.

[15] Note: the estimated benefits are for locomotives operating on the interstate network and in South Eastern Australia.


RAIL
ROAD
CROSSING
STOP
LOOK
FOR
TRAINS