Diesel emissions management: survey results

Following a workshop on 13 June 2014, the EPA sought the views of industry and the community via a survey about the management of diesel emissions. The EPA views this as valuable input to its development of a strategy for managing non-road diesel emissions for NSW.

The information below summarises the responses of participants to the questions in the survey.

Q1. Please identify your sector

	Response (no.)	Response (%)
Member of community	11	13.3%
Industry	41	49.4%
Local council	2	2.4%
State agency	20	24.1%
NGO/research/academic	2	2.4%
Other	7	8.4%
Answered question	**83**	
Skipped question	**0**	

Q2. Please identify your location in NSW

	Response (no.)	Response (%)
Upper Hunter	10	12.0%
Lower Hunter	11	13.3%
Central Coast	4	4.8%
Sydney Metro	47	56.6%
Illawarra	3	3.6%
Regional-urban	2	2.4%
Non-urban	6	7.2%
Additional locations (e.g. statewide, interstate)	9	
Answered question	**83**	
Skipped question	**0**	

Q3. What initiatives have you or your organisation taken to reduce exhaust emissions from non-road diesel equipment?*

	Response (no.)	Response (%)
Organisational policies and/or practices	29	38.2%
Retrofit of in-service equipment	24	31.6%
Purchasing cleaner equipment	22	28.9%
Participation in NSW Government diesel emission programs	17	22.4%
Community education programs	10	13.2%
None	10	13.2%
Not applicable	20	26.3%
Other (please comment below)	17	22.4%
Answered question	**76**	
Skipped question	**7**	

* Respondents could select multiple options

Q4. What other initiatives or activities has your organisation undertaken to reduce diesel emissions?

Responses (grouped by sector)

Industry

- Working with the EPA on the Clean Machine Program for their heavy vehicle fleet
- Trials of fuel additive products on the market
- Audits of diesel storage and pumping equipment
- Limit idling and operational controls

Mines

- Working cooperatively with suppliers to improve their products
- Various modifications and optimisation of in-service equipment

Shipping and ports

- Shared the EPA Clean Machine Program with Newcastle port users
- Maintain an emissions inventory
- Report to the National Pollutant Inventory
- Use of a diesel electric dredge so operations are performed at maximum peak engine performance

Other

- Compressed natural gas truck fleet (a local council)
- Lobbied for better outcomes and further research (community member)
- Facilitate and lead industry groups to reduce emissions and develop and update guidelines for managing diesel particulate emissions (Department of Trade and Investment – Mine Safety)

Q5. Are you involved in operations at any EPA-licensed premises or activity?

	Response (no.)	Response (%)
Yes	29	40.3%
No	43	59.7%
Answered question	**72**	
Skipped question	**11**	

Q6. If yes to Q5, what activity or involvement?

- Asphalt plants (multiple responses)
- Blasting and ammonium nitrate facilities
- Coal mining: open-cut and underground (multiple responses)
- Primary iron and steel manufacture
- Quarries
- Railway system activities and crushing, grinding or separating
- Rail construction
- Port: shipping in bulk and dredging
- Waste operations
- Clean machine retrofit program supplier
- Environmental management
- Community member/neighbour
- Regulator
- Supplier of equipment (multiple responses)

Q7. Do you have a view on regulating the following licensed industry sectors or activities?*

	Yes	No	Don't know	Response (no.)
Metalliferous mines	25	17	11	49
Coal mines	17	10	7	32
Quarries	24	14	11	47
Landfill and waste operations	19	17	12	46
Ports	33	17	9	54
Construction and infrastructure projects	27	14	8	47
Locomotives and railways	26	16	11	51

* Respondents could select multiple options

Q8. What would encourage your organisation to reduce/further reduce exhaust emissions from non-road diesel equipment?

Responses (grouped by initiatives)

Standards, codes, regulation

- Enacting national standards (multiple responses)
- Regulation/legislation requiring tier-compliant equipment (multiple responses)

- Introduce non-road emissions legislation in a time frame which allows all stakeholders to adjust
- Collaboration on an industry code
- Implementation of low-emission zones near sensitive receptors, such as hospitals, child care and aged care facilities, sports grounds, etc.
- 'A clear specification'

Supportive practices and procedures

- Placing restrictions/guidelines through tender processes on construction and infrastructure processes
- Cleaner procurement programs and guidelines
- Realistic time frames to upgrade equipment
- Activities to target contractors
- Activities to target existing diesel fleet, particularly older, more polluting equipment

Education and guidelines

- Raise public awareness on the health hazards of diesel emissions
- Education initiatives on driver behaviour, reducing idling time, diesel variations, additives, new technologies, etc. (multiple responses)
- Advice and information on retrofitting older equipment
- Having some technical objectives (on particle size and mass technical levels) for particulate matter filtration to help in understanding the sort of filtration needed

Cost levers

- Subsidies, incentives, assistance, grants, government support (multiple responses)
- Retrofitting particulate filters through the EPA Clean Machine Program and increasing the program's funding (multiple responses)
- Improve and increase the threshold for larger fleets to retrofit emission control devices
- Support industries that develop practical, affordable control measures, specifically for use in small business
- Higher tax for emitters above given thresholds (dirtier emitters) and for diesel consumers in areas with high population densities
- Realistic recognition of the time frames and extensive costs involved

Technology and equipment

- Fitting of idle reduction units to the non-road fleet (multiple responses)
- Use of existing standards (US and European Union) to ensure the commercial availability of both relevant equipment at minimal modification costs and manufacturing processes
- Robust and proven technologies and products from suppliers
- Review available technology when replacing equipment and retrofitting if cost is justified
- Promote and support initiatives to use alternatives to diesel

Additional evidence

- Cost-benefit analyses
- Demonstration that reducing diesel exhaust emissions does have environmental benefits and that its replacement would lead to less harm

Q9. What are the barriers to achieving reductions in exhaust emissions?

Responses (grouped by issue)

Regulatory framework

- Lack of regulation (multiple responses)

Cost

- Cost – vs benefits, lower productivity, higher running costs (multiple responses)
- Ability to recover costs in the current business climate

Equipment issues

- Availability of equipment that meets US and European Standards (multiple responses)
- Australian equipment manufacturers do not have the resources to easily switch to Tier 4 and it is not commercially viable to try to run Tier 3 and Tier 4 truck models down the manufacturing line
- Warranty of existing equipment deters retrofitting filters
- Engines are not available to be purchased for particular applications and manufacturers are not set up to support them in Australia
- Longevity of fleet

Knowledge

- Lack of understanding about purchasing new equipment by decision-makers
- Lack of health studies showing health risks for on-site workers
- Proof that diesel emissions are harmful based on quality and up-to-date information: diesel is not a carcinogen, but the end-product – exhaust – is.

Industry constraints

- Excessive administration and reporting requirements
- Attitudes and inertia

Shipping issues

- International shipping is a macro-economic activity and, as such, requires industry-consistent approaches in managing exhaust emissions. The International Maritime Organisation is currently undertaking a fuel availability and quality study aimed at reducing sulfur and nitrous oxides by 2020 along with a study into biodiesel, liquid natural gas and other alternative energy sources.
- Requirements that are made for industry in general are totally impossible to apply to the shipping industry model.

Q10. Is there scope to further reduce exhaust emissions from non-road diesel equipment on your premises?

	Response (no.)	Response (%)
Yes	41	56.9%
No	7	9.7%
Not applicable	24	33.3%
Answered question	**72**	
Skipped question	**11**	

Q11. What other actions could be undertaken to reduce diesel emissions?

Responses (grouped by actions)

Target actions to priority emitters

- Increase regulatory controls on industrial activities that directly affect local communities and regional air quality
- Prioritise industries with machinery located in densely populated areas to ensure the maximum benefit from controls
- Target the higher emitters (based on 'per litre consumed') to obtain the best environmental improvement per dollar invested. Once a level playing field is established, focus on the highest per-litre consumers per output product. This is the only fair way to compare all industries side by side. Weighting must also take into account the operating location in relation to population density to assess and quantify the health impact.
- The transport and construction sectors appear to be leading the way in emission reductions. More emphasis should be placed on shipping, rail and mining. Good work is being overshadowed by poor practices in other areas.
- Consider a sunset clause for older equipment that has not undergone retrofitting until a position is reached where equipment has at least reached a minimal standard.
- The EPA strategy should cover generators and garden equipment run on diesel.

Mining diesel emissions

- Regulate premises and impose pollution reduction programs if exceeding a nominated threshold of diesel use annually. A suitable trigger might be 2 million litres per annum.
- Eliminating mine blasting into the atmosphere would also reduce diesel residues from this activity.

Locomotives

- Standards should be introduced to reduce emissions from diesel locomotives.

Shipping

- In addition to regulatory activities, the NSW Government could consider engaging with the Australian shipping industry and using the Australian Maritime Safety Authority Marine Orders and Commonwealth legislative powers
- Establish low-sulfur zones within NSW and Australian maritime waters (multiple responses)
- Relocate cruise ship berthing where emissions cannot be significantly reduced in the short term until appropriate reduction solutions are available.
- Regulate diesel emissions so cruise ship companies implement fuel switching, scrubbers and shore power in line with emission control areas in Europe and North America.

Efficiency

- Focus on vehicle fuel consumption reduction and emission reduction
- Organise workshops for the improved maintenance and operation of diesel plant to reduce diesel particle emissions and improve efficiency and availability
- Find innovative ways to use equipment more efficiently
- Look at additives aimed at increased performance

Timing of actions

- Stage the introduction of relevant lower emissions technologies, including for engines, plant, equipment and fuel as appropriate for each operation or activity, e.g. requiring cruise ships to use low-sulfur diesel when in port

- Regulations should be brought in gradually so that it is affordable for the businesses to abide by them.
- Actions can be taken when existing equipment is at the end of its useful life as the equipment is long lived and needs lead time for replacement.

Information

- Encourage more technical investigations and published health reports.

Accountability and evaluation of Government-funded actions

- For programs run with public money, before and after measures of the effectiveness should be undertaken.

Published by:
Environment Protection Authority
59 Goulburn Street, Sydney NSW 2000
PO Box A290, Sydney South NSW 1232
Phone: +61 2 9995 5000 (switchboard)
Phone: 131 555 (NSW only – environment information and publications requests)
Fax: +61 2 9995 5999
TTY users: phone 133 677, then ask for 131 555
Speak and listen users: phone 1300 555 727, then ask for 131 555
Email: info@environment.nsw.gov.au
Website: www.epa.nsw.gov.au

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