

Environmental Defenders Offices of Australia



EDOs of Australia

Submission on the National Clean Air Agreement

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Environmental Defenders Offices of Australia (formerly ANEDO) consists of eight independently constituted and managed community environmental law centres located across the States and Territories.

Each EDO is dedicated to protecting the environment in the public interest. EDOs provide legal representation and advice, take an active role in environmental law reform and policy formulation, and offer a significant education program designed to facilitate public participation in environmental decision making.

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Executive Summary

The Environmental Defenders Offices of Australia (**EDOs of Australia**) welcome the opportunity to comment on the *Working towards a National Clean Air Agreement – Discussion paper* (March 2015).¹

EDOs of Australia is a network of community legal centres that specialise in public interest environmental law (formerly known as the Australian Network of EDOs (**ANEDO**)). For the last 30 years we have helped people use the law to protect the environment. Our offices provide community legal advice, representation and legal education across Australia. We also provide expert policy and law reform advice to community groups, NGOs, governments and law-makers.

In summary, we recommend that any National Clean Air Agreement should:

- **reduce systemic delays** in improving air quality standards (it is unclear why agreeing on a framework would take two years and advances can be made now);
- **adopt *continual improvement and best available technology* frameworks** to support the goal of ‘sustained reduction in air pollution and exposure’;
- **apply positive obligations** to protect the environment as per the United States of America *Clean Air Act*;
- **make decisions in accordance with ecologically sustainable development**;
- **adopt and enable ‘next generation’ air quality monitoring technology**, real-time publication and online access to air quality monitor information;
- **manage ambient air pollution holistically with greenhouse reduction targets** and climate change policy, for co-benefits and efficiencies;
- **include clear timeframes, regular public reporting, review and evaluation.**

To demonstrate the Agreement’s purpose and effectiveness the **initial work plan** should:

- **rapidly conclude the Ambient Air Quality NEPM variation** for particulate matter (**PM₁₀ and 2.5**) based on stringent compulsory standards.² This is a priority with or without a National Agreement.
- **rapidly finalise compulsory emissions standards for urban wood-heaters.**³

Longer-term work plan priorities should be based on transparent advice, guidance and research from a **new Independent Expert Scientific Committee on Air Quality**. Longer-term priorities for the Expert Committee to consider could include:

- Frameworks to implement *continual improvement and best available technology*;
- Legislated light vehicle carbon emission standards;
- Regulating carbon and other greenhouse emissions as air pollutants;

¹ <http://www.environment.gov.au/system/files/pages/e60c698a-ea71-4f3f-8c01-30213f1512e1/files/ncaa-discussion-paper.pdf>

² For example, Binding limits should be formalised at PM₁₀ 24-hour average of 40µg/m³ and PM_{2.5} 24-hour average of 6µg/m³ with corresponding annual average limits.

³ For example, NZ sets binding performance standards with a maximum of 1.5g pollution/kg, and an efficiency >65%.

- Research and limit methane emissions from mining (including fugitive emissions);
- Integrating Health Impact Assessment into state development assessment laws;
- Pilot measurement for ultrafine particulate matter (such as PM₁);
- Improved fuel quality standards and petrol bowser vapour recovery;
- Address pollution from marine and other non-road diesel sources (electricity generation, industrial machinery, etc.) to reduce cancer and environmental risks.

Any National Agreement must include **clear timeframes** for continual improvement in regulated air quality standards, supported by **public reporting, reviews and evaluation**.

Key performance indicators for any National Clean Air Agreement could include:

- accelerated improvement of air quality standards relative to last 10 years;
- variations to Ambient Air Quality NEPM (PM_{10 & 2.5}) in place and effective;
- updated NEPM standards for other pollutants are publicly exhibited;
- binding emissions standards for wood-heater smoke in place and effective;
- a national harmonised regulatory framework is adopted to require *continual improvement* and *best available technology*;
- clean air work plan priorities are set using transparent criteria and consultation;
- clean air work plan priorities are based on independent expert scientific advice, published research, government responses, regular review and reporting;
- pilots or rollout of 'next generation' real-time air quality monitoring technology;
- central online portal(s) established for air quality information and monitoring data.

Each indicator should be explicitly linked to a clear two-year implementation timeframe, and use international benchmarks, at a minimum, to assess standards and performance.

This submission also draws on our recent work on air quality and legal frameworks. In particular we **attach** our two previous submissions on the:

- A. *Draft Variation to the National Environment Protection (Ambient Air Quality) Measure (2014)***;⁴ and
- B. *Senate Inquiry into the impacts on health of air quality in Australia (2013)***.⁵

These two submissions include more detailed analysis and recommendations.

We acknowledge the important work of Australia's pollution and environmental regulators, and would be happy to meet with federal and state departments to discuss this submission or provide further assistance based on our experience across Australia.

⁴ *Submission on the Draft Variation to the National Environment Protection (Ambient Air Quality)*, October 2014 [PDF 148 KB].

⁵ *Submission to the Senate Inquiry into the impacts on health of air quality in Australia*, March 2013 [PDF 594 KB].

Introduction

We note the Discussion Paper has been prepared by the Commonwealth Department of the Environment in cooperation with State and Territory environment agencies. We welcome the high-level discussion and recognition of the latest science and standards from leading agencies.⁶

We also welcome the context and recognition in the Discussion Paper (pp 5-9) that:

- 'exposure to ambient air pollution is largely beyond the control of individuals';
- regulation is largely responsible for Australia's comparatively high air quality;
- health costs of air pollution from premature death alone are estimated to cost Australia \$11.1 to 24.3 billion each year;
- Australia must respond to growing challenges to maintain and improve air quality, based on projected future urban, transport, mining and industrial growth;
- Australia's air quality challenges continue to demand regulatory action and government collaboration; and
- 'Countries around the world are actively taking steps to address the increasing concerns of air pollution' by tightening emission standards, setting targets etc.

This submission addresses the three broad questions posed by the Discussion Paper (p 18), namely:

1. Do you agree with the proposed goal, purpose, principles and scope as a basis for the National Clean Air Agreement? If not, please explain and provide alternatives if appropriate. (See pp 5-8 of this submission.)

2. What, in your view, do you consider as a high priority air quality issue(s) that could be considered under the National Clean Air Agreement? Please provide evidence. (See pp 9-15 of this submission.)

3. Can you provide any suggestions for cooperation/partnerships and/or knowledge, education and awareness for the purpose of assisting governments to manage air quality? (See p 16 of this submission.)

⁶ Such as the World Health Organisation (**WHO**), the International Agency for Research on Cancer and the Australian Institute for Health and Welfare.

1. Goal, purpose, principles and scope of a National Clean Air Agreement

1.1 Goal of the National Clean Air Agreement

The Discussion Paper (p 12) proposes the goal of a National Clean Air Agreement as:

The sustained reduction in air pollution and exposure for all Australians, with associated health, environmental and economic benefits.

We support this overarching goal, but its effectiveness depends on how it is interpreted and implemented by the Commonwealth, States and Territories.

For example, on interpretation, it should be made clear that “sustained reduction” involves *continual improvement*. In our 2014 NEPM submission (**Attachment A**) we recommended “introducing stricter, compulsory standards and a continual improvement framework”.

The United States of America (**US**) *Clean Air Act* places a positive obligation on licensees to protect the environment, and the EPA regulates facilities according to standards of the ‘best available technology’ (discussed below).⁷ Adopting similar requirements here would be an important step toward sustained improvement to address Australia’s clean air challenges.

On implementation, it is unclear how a National Clean Air Agreement will actually overcome chronic and recurrent delays in reviews. At present, these delays mean that regulators and industries may defer improvements; and that information from policy reviews is often outdated before the new standards come into effect.

1.2 Purpose of the National Clean Air Agreement

The Discussion Paper (p 13) proposes two purposes for the Agreement:

1. *Providing a facilitating framework to identify specific air quality issues where concentrated effort is needed and will afford health, environmental and economic benefits.*
2. *Formalising cooperative management of air quality at the national, state and local levels to help develop effective and efficient policy settings to ensure Australia can respond to current and emerging air quality priorities. [emphasis added]*

Overall we support these broad purposes. With regard to the second purpose:

- The meaning of ‘Formalising cooperative management’ should be clarified.
- This needs to be based around specific compulsory limits for all pollutants. Again, this must include ‘*continual improvement*’ requirements.
- This purpose could usefully refer to policy settings and ‘standards’ that are ‘robust, consistent and timely’ in addition to ‘effective and efficient’.

⁷ See for example EDO NSW, *Clearing the Air* (2012), p 13, at http://www.edonsw.org.au/clearing_the_air_opportunities_for_improved_regulation_of_pollution_in_new_south_wales. See further *Clean Air Act*, 42 USC ss 7401-7671; sections 7408-09.

An additional practical purpose of the Agreement could be: ‘Facilitating, harmonising and integrating air quality standards into state planning and development approval laws.’ If this is not adopted as an overarching purpose, it should be adopted as an ongoing priority in the workplan.

A key present barrier to improving air quality is that:

- states apply air quality assessment and standards in inconsistent ways;
- state planning and development approval laws don’t adequately integrate with state pollution laws (and sometimes override them), so air quality assessments and standards are subjective, inconsistent and uncertain.

Lack of integration between planning and pollution laws is discussed in our 2013 Senate Inquiry submission (**Attachment B**, pp 8-13).

1.3 Principles of the National Clean Air Agreement

The Discussion Paper (p 13) proposes seven principles to support prioritisation and decision-making under the Agreement:

1. *The Agreement facilitates action to address current and emerging air quality issues.*
2. *Responses to air quality issues under the Agreement maintain best practice approaches, consider the latest evidence available and identify the most appropriate level of government to take the lead.*
3. *Policy decisions under the Agreement are relevant, timely, consider available resources, allow for effective consultation and adequate lead-in times, and minimise disruptions that may result from policy changes.*
4. *Air quality management measures delivered are efficient and effective, and avoid creating cumulative or overlapping regulatory burdens.*
5. *Overall community benefits, taking account of social, environmental and economic outcomes for measures, whether regulatory or non-regulatory, are considered.*
6. *Activities under the Agreement are consistent with Australia’s international obligations.*
7. *The Agreement and endorsed work programme is periodically reviewed to maintain a focus on achievement of desired outcomes and to ensure its continuing relevance.*

We generally support these principles. We make some additional comments below.

- **Principle 2** – should say ‘apply’ not just ‘maintain’ best practice approaches. The latter may be taken to imply current standards are best practice, whereas the driver for an Agreement is the need to apply best practice to current and emerging challenges.
- **Also under Principle 2** – the meaning of ‘best practice’ should be clarified and used consistently. This could include:
 - ensuring Australian air quality standards reflect global leading practice at a minimum;
 - a commitment to continual improvement and best available technology;

- a ‘highest common denominator’ approach to consistent standards.
- **Principle 3** – policy decisions should ‘integrate economic, environmental and social considerations’ (see also the additional principle on ESD proposed below). This is distinct from taking these factors into account under principle 5 (principle 5 may be taken to focus on decisions about new policy measures not all decisions).

An additional standalone principle that any Agreement should incorporate is:

- making decisions in accordance with the principles of **ecologically sustainable development** (ESD) – for example, by improved valuation of the benefits of clean air and the costs of pollution.

1.4 Agreement must prioritise regulatory effectiveness not reduction

The language of any Agreement must reflect the need for *effective and efficient regulation* and *continual improvement*, not a need to reduce regulatory burden. We support regular, purposeful, in-built reviews of policies and standards (p 14). However, the Discussion Paper’s references to ‘Reducing regulatory burden’ (p 14) detract from the underlying drivers and costs that build the case for a National Clean Air Agreement.

The broad statement that ‘Opportunities may also include streamlining, revising, revoking or reviewing existing air quality management strategies’ is of concern. In order to meet the goal of ‘sustained reduction in air pollution...’, any attempts to reduce regulatory burden by replacing existing strategies would need to replace them with *stronger* standards; and implement more consistent clean air programs across jurisdictions. This would improve air quality while reducing inconsistency across governments and industry.

A growing body of public health data, environmental science and economic analysis demonstrate that appropriate regulation of pollution abatement is cost effective compared to the expense of avoidable mortality and respiratory disease. For example:

- A recent OECD report on environmental policies found that more technologically advanced industries can benefit from more stringent environmental policies, and strong environmental policies have no longer-term effects on productivity growth.⁸
- The Discussion Paper (p 7) cites Australia’s health care externalities (A\$11 billion to \$24 billion each year in cost of mortality from air pollution). These significant figures clearly demonstrate ongoing and *increasing* need for clean air regulation.
- The Australian Academy of Technological Scientists and Engineers estimates the external costs of CO₂ and the health effects of PM₁₀, SO₂ and NO_x for brown and black coal compared to cleaner energy sources to be in the range of \$9 billion.⁹
- Columbia University research into cost-benefits of the US *Clean Air Act* found:

...costs of \$9 billion in forgone earnings of labor in newly regulated plants under the Clean Air Act Amendments for the six years after the change in policy. While this is doubtless significant, the health benefits from this

⁸ Silvia Albrizio, Enrico Botta, Tomasz Koźluk, Vera Zipperer *Do Environmental Policies Matter for Productivity Growth? Insights from New Cross-Country Measures of Environmental Policies*,: 1: OECD, France, No.: 1176.

⁹ ATSE, *The Hidden Costs of Electricity: Externalities of Power Generation in Australia*, 2009, <<http://www.atse.org.au/Documents/Publications/Reports/Energy/ATSE%20Hidden%20Costs%20Electricity%202009.pdf>>

regulation are estimated at between \$160 billion (\$160 thousand million) and \$1.6 trillion (\$1 thousand six hundred billion), several orders of magnitude higher.¹⁰

- The US Environmental Protection Agency (EPA) calculated that when considering both the costs and human mortality benefits, PM_{2.5} regulation would save the US \$3 billion to \$9 billion.¹¹

This evidence shows strengthening air quality regulation is far better than reducing it.

1.5 Scope of the National Clean Air Agreement

We generally support the proposed scope of the agreement as shown in Figure 3 (Discussion Paper, p 15). We make the following additional comments to improve scope:

- Standards: use international benchmarks to assess performance and standards;
- Emission Reduction Measures: should identify and address cumulative impacts;
- Avoided health costs: should also *internalise* health costs in decision-making;
- Knowledge education & awareness: should include commissioning and publishing research, and funding for communities and NGOs to raise awareness.

Both 'standards' and 'emission reduction measures' under the Agreement should address ambient air quality and greenhouse gases holistically (see 2.4 below). We strongly support transparency, evidence-based decision making and empowerment of local communities to engage and improve their air quality. We also support cooperation and partnerships including with non-government organisations (NGOs) (see 3 below).

¹⁰ W. Reed Walker, 'The transitional costs of sectoral reallocation: evidence from the Clean Air Act and the workforce' (2011), cited in P. Sukhdev, *Corporation 2020*, p 107 (emphasis added).

¹¹ US EPA, "Regulatory Impact Analysis for the Final Revisions to the National Ambient Air Quality Standards for Particulate Matter", ES-14, December 2012, <<http://www.epa.gov/ttnecas1/regdata/RIAs/finalria.pdf>>.

2. Identifying high priority issues for air quality

2.1 Prioritisation Framework and Work Plan – Additional steps

The Discussion Paper proposes two practical components of the Agreement – a ‘facilitating framework’ to identify priorities, and an ‘agreed work plan’ (p 11). The flowchart at Figure 4 (Discussion Paper p 16) contextualises these processes.

We add the following further steps for the prioritisation framework and work plan (Fig. 4):

- *Public guidelines or criteria* to inform the work plan ‘Prioritisation Process’;
- *A clear process to identify the best mechanisms* to address work plan priorities (e.g. mandatory consultation, cost-benefit analysis, health impact assessment);
- *Transparency and reasons* for ‘not prioritising’ identified concerns (e.g. why did Ministers decide not to put the concern on the work plan, what other mechanisms are addressing this concern, will the concern be reviewed for inclusion later?);
- *Reporting* in addition to ‘Monitor continued effectiveness and review Work Plan’.

2.2 Draft Work Plan Activities

EDOs of Australia recognise that extensive work has already been done in recent years that highlight a number of important areas for action, including those listed in Table 1 (Discussion Paper p 17).

Importantly the Work Plan must include clear timelines, milestones and reporting (generally missing from the Draft at Table 1). This is consistent with the need for any Agreement to *accelerate* delivery of standards for improved air quality. Australia is currently behind many European and WHO standards and these need to be implemented quickly at a minimum.

The Agreement should focus on implementing existing recommendations, as well as developing a framework to allow independent scientific expertise to inform future priority-setting. Future prioritising should build-in advice from scientific experts in the field but outside existing government processes, as well as governmental expertise. For example, we recommend the Agreement establish a legislated Independent Expert Scientific Committee (**IESC**) on Air Quality to advise Ministers, similar to the IESC on water impacts from coal seam gas (**CSG**) and coal.¹²

2.3 Short-Term Work Plan Priorities

Immediate short-term priorities under a National Agreement should be to finish outstanding reviews (e.g. Air Quality NEPM, wood-heater emissions). These should improve compulsory standards in line with evolving technology and public expectations.

¹² See <http://www.iesc.environment.gov.au/>: *The IESC provides:*

- *Independent, expert scientific advice on CSG and large coal mining proposals as requested by federal and state government regulators; and*
- *Advice to the Australian Government on bioregional assessments and research priorities and projects.*

Particulate matter PM₁₀ and PM_{2.5}

EDOs of Australia strongly support compulsory and stringent PM₁₀ and PM_{2.5} standards. A new approach is also needed to setting and enforcing standard 'exceedences' to avoid misuse.

As detailed in our 2014 submission (**Attachments A**), we support:

- PM₁₀:
 - an annual average of 20µg/m³;
 - a 24-hour average of 40µg/m³;

- PM_{2.5}:
 - an annual average of 25µg/m³; and
 - a 24-hour average of 8µg/m³.

- Within five years, PM_{2.5} standards should reduce to:
 - an annual average of 20µg/m³; and
 - a 24-hour average of 6µg/m³.

Wood Smoke

As detailed in our 2014 and 2013 submissions (**Attachments A and B**), inefficient woodstoves are primary contributors to particulate air pollution across Australia. The current Australian/New Zealand Standard for wood heater emissions is far too high. The maximum of 4g pollution per kilogram of wood burnt (4g/kg) is far above standards adopted overseas, and far above the emissions criteria achievable by new technologies. While most Australian jurisdictions have point of sale regulations, there is poor compliance and limited enforcement.¹³ In New Zealand, regulations refer to the Australia/New Zealand Standard but set stringent performance standards. Urban wood-burners must meet an emission standard of 1.5 g/kg and efficiency of at least 65%.¹⁴

2.4 Longer-Term Work Plan Priorities

Longer-term priorities should be determined by the expert advisory process at 2.2 above, and should support progress on the pollutants mentioned in the Discussion Paper.

In addition, the expert committee could consider the following medium-term priorities:

- Frameworks to implement *continual improvement* and *best available technology*;
- Light vehicle CO₂ emissions standards for health and consumer benefits;¹⁵
- Regulating carbon and other greenhouse emissions as air pollutants;
- Limiting methane emissions for coal and unconventional gas (including fugitive emissions) and addressing research gaps (lifecycle emissions, legacy risks);
- Feasibility trials to measure particles below 2.5 microns (PM₁ or smaller);

¹³ Environment Protection Heritage Council Briefing Document, *National Approach to Reducing Woodheater Emissions Scoping Paper on Regulatory Options* <<http://tinyurl.com/7omeon4>>, 2.

¹⁴ National Environmental Standards for Air Quality: Authorised Woodburners' New Zealand Ministry for Environment Website <<http://www.mfe.govt.nz/laws/standards/woodburners/index.html>>.

¹⁵ See Climate Change Authority, *Light Vehicle Emissions Standards for Australia – Research Report*, June 2014.

- Improving integration between planning and air pollution laws (for example, adopting 'health impact assessments' as standard practice in legislation);
- Improve fuel quality standards such as for benzene levels in petrol and vapour recovery refuelling technology;
- Address pollution from marine and other non-road diesel sources. This should include binding standards; and improved rail systems with high quality engines to encourage use of public transport and rail freight instead of on-road vehicles.

These issues are canvassed below. On planning laws and health, see **Attachment B**.

Establish frameworks for Continual Improvement and Best Available Technology

A National Clean Air Agreement should consider options to establish *continual improvement* and *best available technology* frameworks akin to the US *Clean Air Act*. Properly adapted to Australia's federal system, this approach would be consistent with the policy goals of sustained pollution reduction, high air quality standards and greater national consistency. For example:

- State pollution laws should specify that EPA responsibility to regulate air quality in accordance with the relevant framework is an enforceable duty on each EPA.
- This duty should require state EPAs to apply (and/or jointly set) national emission standards for a single list of pollutants and their major sources/facilities.
- EPAs regulate facilities against evolving *best available technology* standards.
- State laws should also include a positive duty on facility operators to prevent or minimise environmental harm not specifically authorised by a pollution licence.

In Australia at present, the objects of some state pollution laws and EPA functions include setting standards and reducing discharges. Licence holders may be generally required to prevent or minimise pollution.¹⁶ Some states also provide important public rights to pursue civil enforcement against breaches.¹⁷ However, Australia lacks specific enforceable duties on state regulators to proactively regulate for continual improvement, or on licence holders to spur innovation and adoption of best available technology.

Some overseas pollution laws set more specific duties for regulators and licensees, within a framework that recognises technology and standards will evolve.

For example, under the US *Clean Air Act*, the US EPA is required to:

- publish and revise a list of pollutants;
- prescribe air quality criteria for those pollutants; and
- set two types of ambient standards for those pollutants:
 - primary standards to protect *public health*; and
 - secondary standards to protect *public welfare*, including environment and property.¹⁸

¹⁶ Laws in Queensland, South Australia, Tasmania, the ACT and NT make it unlawful to carry out any activity likely to cause environmental harm, unless all *reasonable and practicable measures* are taken to prevent or minimise the harm. However this does not uniformly apply to air pollution (see NSW). Cf *Environmental Protection Act 1994* (Qld), ss 440, 443; *Environmental Protection Act 1993* (SA), s 82 and s 3. See further G. Bates, *Environmental Law in Australia*, p 616.

¹⁷ See *Protection of the Environment Operations Act 1997* (NSW), s 252.

¹⁸ See EDO NSW, *Clearing the Air* (2012), p 13. See also *Clean Air Act*, 42 USC ss 7401-7671 and 7408-09.

Further, the US EPA is required to:

- list major *sources* of almost 200 dangerous pollutants identified by Congress; and
- regulate emissions by reference to the cleanest existing facilities (i.e. new and existing plants must then do what is necessary to meet the cleanest standards).

The US approach means that facilities are regulated and expected to adopt cleaner technology, and the EPA can be held to account for its regulatory role.¹⁹ Columbia University research into costs and benefits of the US *Clean Air Act* is noted above.

Light vehicle CO₂ efficiency standards

EDOs of Australia have consistently supported light vehicle emissions standards.²⁰ In 2014, the Climate Change Authority (CCA) reviewed international practices and recommended Australia introduce a light vehicle emission standard under the *Motor Vehicle Standards Act*.²¹ Standards could apply from 2018 and decrease to 105g CO₂ per km by 2025.²²

Economic analysis by the CCA shows consumer fuel savings would more than offset higher upfront cost of buying vehicles, and do so fairly quickly. CO₂ emissions standards already in place in the US, Europe and China cover 70% of global light vehicles sold.²³ The CCA recommended Australia adopt fleet-average emissions based on vehicle mass in line with the international approach of US, Europe, China and Japan.²⁴ The standards would apply to manufacturers or importers, with penalties for non-compliance.²⁵

Carbon dioxide and methane as air pollutants

Recent scientific opinion published in *Nature* suggests there are significant co-benefits for public health and greenhouse mitigation by addressing air quality and climate policy together.²⁶ A Clean Air Agreement should consider options to do so.

The Discussion Paper mentions carbon dioxide only with reference to the Emissions Reduction Fund. The Discussion Paper does not mention methane – another potent greenhouse gas and the main component of natural and unconventional gas – at all.

In contrast to other air pollution, it is well known that Australia's per-capita carbon dioxide emissions are one of the world's highest. Leading overseas environmental agencies such as the US EPA are reclassifying carbon dioxide as a core air pollution target.²⁷

Methane from coal seam gas is discussed below. In March 2014 the US announced a strategy to reduce emissions, improve measurement and monitoring and assess current methane emissions data.²⁸ In January 2015 the US EPA outlined further steps to address methane and smog-forming VOC emissions from the oil and gas industry.²⁹

¹⁹ See EDO NSW, *Clearing the Air* (2012), p 14; see also *Massachusetts v EPA* 549 US 1 (2007).

²⁰ See ANEDO *Submission on Light Vehicles CO₂ Emissions Standards for Australia* (2011), at <http://anedo.edonsw.nationbuilder.com/pollution1>.

²¹ *Ibid*, 84.

²² Climate Change Authority, *Light Vehicle Emissions Standards for Australia Research Report* June 2014, 6.

²³ *Ibid*, 61.

²⁴ Note 1, 87.

²⁵ *Ibid*, 93.

²⁶ J. Schmale et al., 'Air pollution: Clean up our skies', 19 Nov. 2014, *Nature*, at <http://www.nature.com/news/air-pollution-clean-up-our-skies-1.16352>.

²⁷ US EPA, <<http://www2.epa.gov/carbon-pollution-standards/what-epa-doing>>.

²⁸ http://science.nasa.gov/science-news/science-at-nasa/2014/09oct_methanehotspot/, 'More information'.

²⁹ <http://www.epa.gov/airquality/oilandgas/pdfs/20150114fs.pdf>.

The climate change effects of the 0.9°C temperature rise since 1900 are summarised in Australia's *State of the Climate 2014* report.³⁰ The UN Intergovernmental Panel on Climate Change states with high confidence that without additional mitigation efforts, and even accounting for adaptation, warming by the end of the this century will lead to 'high to very high' risk of severe, widespread, and irreversible impacts globally.³¹

Coal seam gas – regulatory deficiencies, knowledge gaps, risk-based approaches

An emerging priority for expert consideration relates to methane emissions from CSG, other unconventional gas and coal mining (including fugitive emissions). This includes addressing research gaps (lifecycle emissions, legacy risks). Despite federal and state inquiries, state laws do not adequately assess or take account of greenhouse emissions, cumulative impacts or potential health impacts from CSG or other extractive sources.

In September 2014 the NSW Chief Scientist & Engineer's review of NSW CSG laws was released.³² It called for a total regulatory overhaul. In the month after the Chief Scientist's report came out, EDO NSW completed a desktop review of international best practices.³³

The Chief Scientist noted there are few published peer-reviewed studies on human health risks and potential health impacts from CSG activities.³⁴ Scientists simply do not have epidemiological studies to prove or disprove causal relationships between CSG activities and human health. Thus the Chief Scientist recommended a risk assessment approach. The Australian Medical Association agrees that there is insufficient data on cumulative health impacts of CSG and a lack of comprehensive environmental monitoring and health impact assessments.³⁵

Other research into Australia's unconventional gas emissions, including fugitive emissions from CSG, has lagged behind the industry's expansion in Queensland and elsewhere. Only now is Australian research starting to be done.^{36,37,38} Significant gaps

³⁰ Bureau of Meteorology & CSIRO, *State of the Climate 2014*, <www.bom.gov.au/state-of-the-climate>.

³¹ UN Intergovernmental Panel on Climate Change, *Climate Change 2014: Synthesis Report*, <<http://www.ipcc.ch/report/ar5/syr/>>.

³² On air quality see NSW Chief Scientist & Engineer, 'Independent Review of Coal Seam Gas Activities in NSW: Managing environmental and human health risks from CSG activities', September 2014.

³³ EDO NSW, 'A review of NSW Coal Seam Gas Regulation and International Best Practice – Legal Briefing Paper', November 2014 at <https://d3n8a8pro7vhnmx.cloudfront.net/edonsw/pages/1831/attachments/original/1418007825/141118_CS_G_Regulatory_analysis_-_Briefing_Paper.pdf?1418007825>.

³⁴ NSW Chief Scientist & Engineer, 'Independent Review of Coal Seam Gas Activities in NSW: Managing environmental and human health risks from CSG activities', September 2014, pp 23-24 and 28-29, at <http://www.chiefscientist.nsw.gov.au/_data/assets/pdf_file/0006/56922/140930-Final-Managing-Environmental-and-Human-Health-Risks.pdf>.

³⁵ <<https://ama.com.au/media/ama-calls-coal-seam-gas-health-checks>>

³⁶ In 2014 CSIRO published a study showing minor leaks from 40 of 43 tested gas wells from point sources: water vent lines, equipment leaks and relief vents. See: S. Day et al., 'Field Measurements of Fugitive Emissions from Equipment and Well Casings in Australian Coal Seam Gas Production Facilities - Report to the Department of the Environment' CSIRO, June 2014 at <<http://www.environment.gov.au/system/files/resources/57e4a9fd-56ea-428b-b995-f27c25822643/files/csg-fugitive-emissions-2014.pdf>>

³⁷ A 2013 study of radon and CO₂ emissions showed strong correlations between atmospheric radon and CSG development. One mechanism for these changes may be that diffuse emissions occur, ie, gases may be leaking up through the soil above CSG operations. See D. Tait, I. Santos and D. Maher. 'Enrichment of radon and carbon dioxide in the open atmosphere of an Australian coal seam gas field', *Environmental Science & Technology*, 47 (2013) 7, 3099-3104, <http://epubs.scu.edu.au/esm_pubs/1693/>.

³⁸ A follow up study by the same researchers in 2014 mapped Queensland and NSW CSG exploration and production sites. They discovered higher than ambient methane and CO₂ around gas sites: D. Maher, I. Santos and D. Tait, 'Mapping Methane and Carbon Dioxide Concentrations and δ¹³C Values in the

remain. Forward-looking research into legacy issues and clean-up costs is also warranted. Concerning studies are now emerging from areas of the mature US gas, coal, and coalbed methane industry.³⁹ This underscores the need for robust upfront assessment, emission limits, monitoring and research.

Particulate matter PM₁ and other air pollutants

As stated in our 2014 submission (**Attachment A**), Australia should undertake trials to demonstrate the feasibility of measuring particles below 2.5 micron to the range of 1 micron (PM₁) and lower.

We also support ongoing efforts to reduce air emissions of pollutants noted in the Discussion Paper (p 6): mercury (Hg), ozone (O₃), nitrous oxides (NO_x), sulfur dioxide (SO₂) and diesel exhaust. While the in-progress NEPM variation focuses on PM₁₀/PM_{2.5}, our comments in that submission apply to all pollutants in the Ambient Air Quality NEPM.

Petrol

The Discussion Paper invites comment on fuel and fuel quality standards (pp 3, 6 and 14). As the automotive industry, petroleum industry and standards for both are highly globalised, domestic adoption of international best practices should be investigated. For example, just as the shift from leaded petrol significantly reduced ambient atmospheric lead, benzene reduction and vapour recovery could yield cost effective improvements with positive public health benefits, reducing exposure to benzene, ozone and PM_{2.5}.

Benzene levels in petrol: Recent studies show links to prenatal health⁴⁰ and leukemia⁴¹ from low levels of benzene in automobile fuel. Australian fuel standards allow up to 1% volume benzene in petrol.⁴² The US EPA announced reductions in benzene for US gasoline standards in 2007.⁴³ These were fully phased in on 1 January 2015. Benzene levels were reduced from 1% volume to 0.62% volume. The US EPA estimated this standard will reduce cancer from automobile-sourced benzene and 1,3-butadiene by 30%, incur minimal implementation costs, and provide co-benefits of reduced PM_{2.5} and ground level ozone.⁴⁴

Atmosphere of Two Australian Coal Seam Gas Fields' *Water, Air, & Soil Pollution*, November 2014, 225:2216.

³⁹ In October 2014 scientists in the US reported the discovery of a methane 'hotspot' in the atmosphere above the south-western US. The leak was estimated to be 600,000 tonnes of methane per year, approaching 10% of the EPA's estimate of total US methane emissions from natural gas. See: Eric A. Kort, 'Four corners: The largest US methane anomaly viewed from space', *Geophysical Research Letters*, 16 October 2014, Volume 41, Issue 19, 6898–6903, <<http://onlinelibrary.wiley.com/doi/10.1002/2014GL061503/abstract>>. NASA has also reported the 'hotspot', which NASA attributes 'to leaks in natural gas production and processing equipment in New Mexico's San Juan Basin, which is the most active coalbed methane production area in the country.': http://science.nasa.gov/science-news/science-at-nasa/2014/09oct_methanehotspot/

⁴⁰ Sammy Zahran et al; 'Maternal benzene exposure and low birth weight risk in the United States: A natural experiment in gasoline reformulation' *Environmental Research* 112 (2012), 139–146.

⁴¹ Evelyn Talbott et al, 'Risk of leukemia as a result of community exposure to gasoline vapors: A follow-up study' *Environmental Research* 111 (2011) 4, 597-602.

⁴² <http://www.environment.gov.au/topics/environment-protection/fuel-quality/standards/petrol>.

⁴³ Control of Hazardous Air Pollutants From Mobile Sources ("MSAT2") rule published on February 26, 2007 (72 FR 8428) at <<http://www.epa.gov/oms/regs/toxics/420f07017.pdf>>.

⁴⁴ "Final Regulatory Impact Analysis", Control of Hazardous Air Pollutants From Mobile Sources, US EPA. EPA420-R-07-002, February 2007, Federal Register at <<http://www.gpo.gov/fdsys/pkg/FR-2007-02-26/pdf/E7-2667.pdf>>.

Implement automobile refilling fuel vapour recovery: Recent research has examined fuel vapour emissions near filling stations.^{45,46} The US EPA requires fuel vapour recovery at filling stations across the USA. We understand that NSW is adopting fuel vapour recovery, with phase-in for Sydney, Newcastle and Wollongong from 2014 to 2017.^{47,48} Implementation in other capital cities and dense urban locations could significantly reduce ambient ozone⁴⁹ and inhalation of hydrocarbon vapours.

Engines other than road vehicles

The independent expert scientific committee, proposed in this submission, should consider further work and prioritisation of marine and other non-road diesel (electricity generation, tractors, industrial machinery, etc.) and non-transportation petrol engines.

Diesel exhaust was classified as a Group 1 carcinogen (cancer-causing) in 2012 by the WHO and International Agency for Research on Cancer. The NSW EPA notes there are 'No emission standards for diesel equipment in Australia (new or existing)', but that 'NSW supports introducing national standards'.⁵⁰ In 2013 the Senate Inquiry on Health and Air Quality also recommended federal emissions standards for diesel engines.⁵¹

Further national work should take advantage of NSW EPA's work to date on marine and other non-road diesel.⁵² This should also include improved rail systems with high quality engines, to encourage use of public transport and rail freight instead of on-road vehicles.

Ministers should also consider the broader policy context to ensure other government programs do not defeat the purpose of the National Clean Air Agreement. For example, while on-road users pay diesel tax, off-road diesel users receive diesel tax refunds.⁵³ This incentivises pollution and sends conflicting messages about behavioural change. It is also inconsistent with the polluter pays principle and OECD best practice.⁵⁴

⁴⁵ Health risk assessment of ambient air concentrations of benzene, toluene and Xylene (BTX) in service station environments. Benjamin Edokpolo, Yu Qiming, Des Connell. *International Journal of Environmental Research and Public Health* 11 (2014) 6, 6354-6374.

⁴⁶ Bluett, R. "Reducing vehicle refuelling emissions to improve air quality in the Sydney Region (Conference Paper)". Proc. 14th International Union of Air Pollution Prevention and Environmental Protection Associations (IUAPPA) World Congress 2007, 18th Clean Air Society of Australia and New Zealand (CASANZ) Conf. 2007; Brisbane, QLD; 9 September 2007 through 13 September 2007.

⁴⁷ <http://www.epa.nsw.gov.au/resources/air/vapourecov09758.pdf>

⁴⁸ <http://www.epa.nsw.gov.au/air/petrolvapour.htm>

⁴⁹ Regulatory Impact Statement, Proposed Protection of the Environment Operations (Clean Air) Regulation 2010, Department of Environment, Climate Change and Water NSW, <http://www.environment.nsw.gov.au/resources/air/10504caris.pdf>.

⁵⁰ Crotty, A.L. (NSW EPA), 'Current EPA Diesel Programs', at <http://www.epa.nsw.gov.au/air/managenonroaddiesel.htm>.

⁵¹ Senate Community Affairs Committee, Impacts on health of air quality in Australia, August 2013, recommendation 10. See: http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Community_Affairs/Completed_inquiries/2010-13/airquality/report/index

⁵² NSW EPA, *Diesel and marine emissions management strategy* (2015), <http://www.epa.nsw.gov.au/air/150038DieselStrategy.htm>.

⁵³ See: <https://www.ato.gov.au/Business/Fuel-schemes/Fuel-tax-credits---business/About-fuel-tax-credits/>. NSW EPA note nearly 90% of off-road diesel emissions in Greater Metropolitan Sydney come from coal mines: Agapides, N. (NSW EPA), 'Diesel emissions in NSW - sources and trends', at <http://www.epa.nsw.gov.au/air/managenonroaddiesel.htm>.

⁵⁴ On 'polluter pays' and improved valuation, see for example *Protection of the Environment Administration Act 1991* (NSW), s 6; and *Environment Protection and Biodiversity Conservation Act 1999* (Cth), s 3A. See also OECD, *Improving the Environment through Reducing Subsidies* (1998): http://www.oecd-ilibrary.org/environment/improving-the-environment-through-reducing-subsidies_9789264162679-en; and Pearce, D. 'Environmentally Harmful Subsidies: Barriers To Sustainable Development', OECD Workshop on Environmentally Harmful Subsidies, Paris, 7-8 November 2002.

3. Assisting governments to manage air quality – cooperation, partnerships, knowledge, education and awareness

3.1 Community engagement and access to information

We encourage Environment Ministers and all Australian jurisdictions to adopt processes and policies that empower citizens, local communities and non-government organisations to be more engaged in participatory policymaking. Governments should also identify, recognise and collaborate with firms that demonstrate leading practices.

Local communities have extensive knowledge about the lived experience of air pollution, including hot spot areas and problems arising. These communities need access to timely and accurate data, and have their valid concerns promptly and meaningfully addressed by companies and regulators. All government monitoring stations and all 'activities' that have air quality monitoring as an approval condition should be required to publish raw data in real time, as well as provide regular interpretation reports. This reflects federal and state principles of open government, and addresses information asymmetry.

Recent progress has been made in this area, but more needs to be done. For example, NSW pollution laws require air pollution licence holders (and other licensees) to publish monitoring data that is required under licence conditions.⁵⁵ EDO NSW has noted further measures to improve this system, such as raw data access and centralised access.⁵⁶

The community needs two-way access to a portal to provide 'citizen science' information. A rigorous quality control program must be implemented to ensure that everyone understands the quality of appropriate uses of the types of data provided.

Overall, community engagement and transparency in monitoring and performance data can support long-term improvements to air quality. This requires respect for communities, transparent and accessible information, and adequate funding and resources for community groups, local councils, peak associations and NGOs.

3.2 Reporting, review and performance evaluation

Any National Agreement must include clear timeframes and commitments for continual improvement in regulated air quality standards. This must be supported by regular public reporting, work plan reviews and performance evaluation. There is a difference between reviewing the work plan and reviewing effectiveness or implementation of the Agreement itself.

Performance reviews should be at arms-length from those directing and implementing the programs under the Agreement, and should include public consultation. Previously the COAG Reform Council and Standing Committee on Environment and Water secretariat played these important roles. Both have been abolished. In their absence, reporting, review and performance accountabilities and timeframes must be clarified.

⁵⁵ *Protection of the Environment Operations Act 1997* (NSW), s 66(6).

⁵⁶ EDO NSW *Submission on draft guidelines for the publication of monitoring data under the Protection of the Environment Operations Act 1997*, Feb 2012, [Download PDF](http://www.edonsw.org.au/pollution_policy). See: www.edonsw.org.au/pollution_policy

Attachments

- A. *Draft Variation to the National Environment Protection (Ambient Air Quality) Measure (2014)* [PDF 148 KB](#).
- B. *Senate Inquiry into impacts on health of air quality in Australia (2013)* [PDF 594 KB](#).

Submissions are linked above and at: <http://anedo-edonsw.nationbuilder.com/pollution1>.