



Australian Government

Department of the Environment and Energy

National Clean Air Agreement

2015–2017 Work Plan Review Report



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Executive Summary

The National Clean Air Agreement was established by Australia's environment ministers in December 2015, recognising the challenges facing Australia's current and future air quality. In the two years since its establishment, governments have delivered actions to address priority air quality issues through four strategic approaches: standards, emission reduction measures, partnership opportunities, and better knowledge, education and awareness.

To ensure accountability for its delivery and continued relevance, the agreement's work plan is reviewed by environment ministers every two years. This report reviews the 2015-2017 work plan and considers the extent to which it has been or is being delivered and whether its actions remain relevant as priorities going forward.

Actions delivered under the 2015-2017 work plan include strengthening Australia's national reporting standards for particles in 2016 and introducing new Commonwealth legislation in 2017, which allowed emissions standards for outdoor power equipment and marine engines to take effect in 2018. These actions have addressed the objectives of the agreement by establishing clear, internationally harmonised standards for air quality and emissions, while ensuring their objectives can be met and unnecessary regulatory burden avoided.

Other actions remain priorities. These include: the review of Australia's national reporting standards for sulfur dioxide, nitrogen dioxide and ozone; the adoption of new wood heater efficiency and emissions standards for new wood heaters by states and territories; work to address non-road diesel engine emissions; partnerships with non-government stakeholders; and reforms to improve the National Pollutant Inventory.

The findings of this review form the basis of the next work plan for 2018-2020 to help ensure a clean air future for Australia. The recommended 2018-2020 work plan continues to focus on actions that would benefit from a national approach, while complementing existing air quality management strategies at different levels of government. It reaffirms the collaborative approach of the Australian and state and territory governments to address air quality issues.

1 Introduction

Australia's environment ministers established the National Clean Air Agreement on 15 December 2015, recognising the challenges facing Australia's air quality now and into the future.¹ The agreement sets a framework to help Australian governments to identify and prioritise air quality actions that would benefit from national collaboration to deliver health, environmental and economic outcomes for Australians.²

At the establishment of the agreement, environment ministers agreed on an initial two-year work plan spanning December 2015 to December 2017.³ The 2015-2017 work plan comprised a range of new, existing and complementary actions and identified the roles, responsibilities and timeframes for implementing those actions to address agreed priorities. Under the agreement, the work plan is to be reviewed by environment ministers every two years to maintain accountability for delivery and ensure its continued relevance.

A mid-term review report released in November 2016 showed jurisdictions made significant progress on a range of actions during the first 12 months.⁴ For example, states and territories started implementing strengthened national ambient air quality reporting standards for particles and adopting new efficiency and emissions standards for wood heaters. The Australian Government progressed work to introduce new national legislation by 2017 to reduce emissions from outdoor power equipment and marine engines. All jurisdictions established the agreement's priority setting process to help governments prioritise future air quality actions to be included in the work plan.⁵

The Australian Government and states and territories continued to work on delivering the 2015-2017 work plan's actions during 2017. This report reviews the work plan after its two year operation and considers:

- how well the work plan has facilitated the agreement's objectives
- the extent to which actions have been or are being delivered and whether they remain relevant as a priority
- potential new priorities.⁶

The findings of this review form the basis of the next work plan for 2018-2020 to help ensure a clean air future for Australia.

1 Agreed Statement, Fourth Meeting of Environment Ministers, 15 December 2015. Available at: www.environment.gov.au/about-us/mem.

2 National Clean Air Agreement, Commonwealth of Australia 2015 and initial two-year work plan (2015-2017). Available at: www.environment.gov.au/protection/air-quality/publications/national-clean-air-agreement.

3 Refer to above footnote.

4 National Clean Air Agreement Mid-term Review Report, Commonwealth of Australia 2016. Available at: www.environment.gov.au/protection/air-quality/publications/national-clean-air-agreement-mid-term-review-report.

5 National Clean Air Agreement Priority Setting Process, Commonwealth of Australia 2016. Available at: www.environment.gov.au/protection/air-quality/publications/national-clean-air-agreement-priority-setting-process.

6 This report has been prepared by the Air Project Management Group, established in October 2015 to support the implementation of the agreement. The Group comprises representatives from the Australian Government Department of the Environment and Energy and agencies in each state and territory responsible for air quality.

2 Status updates

The work plan sets out four strategic approaches to address air quality issues: standards; emission reduction measures; partnerships and cooperation; and better knowledge, education and awareness. Each approach identifies priority areas and related actions. The following subsections provide status updates for each action and consider the relevance of each priority area for inclusion in the agreement's work plan going forward.

2.1 Standards

Standards ensure a consistent approach to monitoring and reporting air quality and reducing air pollution by limiting emissions from certain sources. The 2015-2017 work plan included priority areas relevant to strengthening Australia's national ambient air quality reporting standards, reviewing fuel quality legislation, and reviewing measures related to air toxics and diesel vehicle emissions.

Priority area:

Vary National Environment Protection (Ambient Air Quality) Measure to strengthen particle reporting standards

Completed

The National Environment Protection (Ambient Air Quality) Measure (the Ambient Air Quality NEPM) establishes a national ambient (outdoor) air quality management framework by setting national standards for six key pollutants and monitoring and reporting requirements. The goals set by the Ambient Air Quality NEPM drive the implementation of air quality management strategies in order to meet the standards. States and territories implement the Ambient Air Quality NEPM and tailor air quality management strategies specifically suited to their jurisdiction.

These standards are set by the National Environment Protection Council (the Council) under the *National Environment Protection Council Act (1994)* (the NEPC Act).⁷ The standards are based on World Health Organization (WHO) guidelines to ensure the adequate protection of human health from air pollution.

A 2011 review of the Ambient Air Quality NEPM recommended that the standards be reviewed to consider new evidence around the health effects of air pollution.⁸

This priority area on the agreement's work plan is one of two priority areas included to address the recommendations of the 2011 review. The 2015-2017 work plan action was for all jurisdictions to implement strengthened particle reporting standards agreed to by the Council by mid-2016.

⁷ The National Environment Protection Council comprises environment ministers and makes decisions regarding National Environment Protection Measures (NEPMs) under the NEPC Act.

⁸ National Environment Protection (Ambient Air Quality) Measure Review: Review Report (2011), National Environment Protection Council. Available at: www.nepc.gov.au/resource/national-environment-protection-ambient-air-quality-measure-review-review-report.

The strengthened particle reporting standards came into effect on 4 February 2016.⁹ Most states and territories have formally adopted the updated standards into appropriate statutory or policy instruments, and all jurisdictions are monitoring and reporting against the strengthened standards.¹⁰

Victoria and the Australian Capital Territory have adopted a strengthened PM₁₀ annual average reporting standard of 20 µg/m³ for their own reporting purposes, although they continue to report against the national PM₁₀ annual average reporting standard of 25 µg/m³.¹¹

As the variation has come into effect and jurisdictions are reporting against the strengthened standards, this action is completed. However, it is important that these standards continue to be reviewed periodically, taking into account the latest scientific evidence regarding the health impacts particles.

At their meeting in December 2015, environment ministers agreed that a review of the latest scientific evidence of health impacts in relation to annual average PM₁₀ reporting standards, co-led by Victoria and New South Wales, would be undertaken.¹² This would follow-on from the anticipated update to the WHO's air quality guidelines expected in 2019. Therefore, the agreement's work plan for 2018-2020 (Appendix A) retains particle reporting standards as a priority area, specifically proposing this additional work.

2018-2020 Work plan recommendation:

Update priority area, action and lead role to reflect the proposed review of the latest scientific evidence of health impacts in relation to annual average PM₁₀ reporting standards, following the update to the WHO's guidelines.

Priority area:

Review Ambient Air Quality NEPM for sulfur dioxide, nitrogen dioxide and ozone towards strengthening the standards

In progress

This is the second of two priority areas in the 2015-2017 work plan addressing the recommendation of the 2011 review of the Ambient Air Quality NEPM to review the standards.¹³ This work focuses on a review of the reporting standards for sulfur dioxide, nitrogen dioxide and ozone.

This priority area is well progressed with detailed preliminary analysis almost complete. The next step is for the Council to consider whether to trigger the formal process to vary the standards under the NEPC Act. If the formal process to vary the standards is triggered, a public consultation process would be

⁹ Particle standards are for particulate matter (PM) with aerodynamic diameters of less than 10 micrometres (PM₁₀) and less than 2.5 micrometres (PM_{2.5}). The updated Ambient Air Quality NEPM is available at: www.legislation.gov.au/Details/F2016C00215.

¹⁰ Queensland will consider incorporating the updated standards for regulatory purposes in its Environmental Protection (Air) Policy 2008 under the *Environmental Protection Act 1994*. This policy is due for review in 2018. The Northern Territory has adopted the updated standards administratively, and is developing relevant guidelines.

¹¹ µg/m³ refers to micrograms per cubic metre.

¹² Agreed Statement, Fourth Meeting of Environment Ministers, 15 December 2015. Available at: www.environment.gov.au/about-us/mem.

¹³ National Environment Protection (Ambient Air Quality) Measure Review: Review Report (2011), National Environment Protection Council. Available at: www.nepc.gov.au/resource/national-environment-protection-ambient-air-quality-measure-review-review-report.

required to seek views on options for strengthened standards. The Council would then consider the feedback received in making its final decision on whether to update the standards, as required under the NEPC Act.

The action on the 2015-2017 work plan was for the Council to have made a decision by mid-2016 on whether to trigger the formal process by forming an intent to vary the standards. Complexities in completing the detailed preliminary analysis has meant a delay to this timeframe. Current projections in completing the review process, while continuing to ensure the statutory requirements under the NEPC Act are followed, are for proposed standards to be presented to the Council for consideration, with a view to strengthening the standards by the end of 2019. This updated timeframe is carried over into the 2018-2020 work plan. The review will consider the latest health evidence, and current WHO guidelines and international standards.

2018-2020 Work plan recommendation:

Update priority area to reflect intent to complete the review process, and update action to reflect timeframe projection.

Priority area:

Review Fuel Quality Standards Act 2000

Completed

The *Fuel Quality Standards Act 2000* (the Act) provides the legislative basis for national fuel quality and fuel quality information standards for Australia. The Act requires the fuel industry and fuel suppliers to supply fuel that meets strict environmental requirements, to minimise associated air emissions, in particular of carbon monoxide, nitrogen oxides, ozone, sulfur oxides, volatile organic compounds and particulate matter.

This priority area was achieved. A review of the Act was completed in April 2016. The review found the Act has led to a significant reduction in the level of pollutants and emissions arising from the use of fuel that may cause environmental and health problems.¹⁴ The review recommended the Act be retained, with amendments to improve its administration and enforcement.

To further reduce toxic emissions and improve air quality, a review of the statutory instruments made under the Act is necessary, as these specify parameters and limit certain components. Such instruments include individual fuel standards for petrol, diesel, ethanol, biodiesel, autogas and biofuel blends.

This process is well progressed. Consultation on a discussion paper '*Better Fuel for Cleaner Air*' took place in late 2016 to early 2017, with more than 70 submissions received.¹⁵ Building on this discussion paper, a regulation impact statement was released for public consultation between January and March 2018.¹⁶ The statement recognises that improved fuel standards could avoid health costs of up to \$3.1 billion.

¹⁴ Review of the *Fuel Quality Standards Act 2000: Final Report*, April 2016. Available at: environment.gov.au/protection/fuel-quality/legislation/review-2015.

¹⁵ *Better fuel for cleaner air*, Commonwealth of Australia 2016. Available at: www.environment.gov.au/protection/fuel-quality/better-fuel-cleaner-air-discussion-paper-2016.

¹⁶ *Better fuel for cleaner air: draft regulation impact statement*, Commonwealth of Australia 2018. Available at: www.environment.gov.au/protection/fuel-quality/standards/review.

2018-2020 Work plan recommendation:

Update priority area to reflect the review of statutory instruments under the Act, and update action regarding next steps in this review process and timeframe.

Priority area:

Review need for Air Toxics and Diesel Vehicle Emissions NEPMs

In progress

The Air Toxics NEPM provides a consistent framework to monitor air toxics. Its goal was to improve the information base for air toxics within the Australian environment to inform a future development of standards. Most jurisdictions agree that the Air Toxics NEPM has been effective in facilitating the investigation of available data in identifying locations most likely to experience significant population exposure to elevated levels of air toxics. Monitoring to date has shown air toxics in Australia to be well below monitoring investigation levels, and no jurisdiction has engaged in any specific strategies to manage them.¹⁷

The Diesel Vehicle Emissions NEPM forms part of an integrated suite of approaches to manage emissions from diesel vehicles. It complements other legislated approaches such as emissions standards for new vehicles and fuel quality standards. The Diesel Vehicle Emissions NEPM provides program guidelines to minimise the deterioration in exhaust emissions performance, or improve exhaust emissions performance, from diesel vehicles while they are in service. Several jurisdictions operate programs to reduce exhaust emissions from diesel vehicles. Examples of these programs include smoky vehicle reporting, diesel retrofit programs and diesel vehicle emission testing and repair or maintenance programs.¹⁸

The Air Toxics NEPM and the Diesel Vehicle Emissions NEPMs were developed more than 10 years ago. The most recent review of the NEPC Acts (Commonwealth, State and Territory), completed in 2013, found both NEPMs to be close to achieving their desired outcomes.¹⁹ The most recent report to Council assessed that considerable progress is being made towards achieving NEPM goals through national initiatives, such as those related to vehicle emissions including the Australian Design Rules and fuel quality standards.²⁰

A review of the NEPMs would determine whether they are still required or if they should be revoked. The action on the 2015-2017 work plan was to have completed this review in 2016. As considered in the mid-term review report, an initial assessment showed a full review would be more efficient following amendments to statutory processes prescribed by the NEPC Act to vary or revoke NEPMs.²¹

17 NEPC Annual Report 2015-16. Available at: nepc.gov.au/publications/annual-reports/nepc-annual-report-2015-16.

18 Refer to above footnote.

19 Report of the Third Review of the National Environment Protection Council Acts (Commonwealth, State and Territory) December 2012; and the National Environment Protection Council's Response April 2013. Available at: www.nepc.gov.au/publications/third-review-nepc-act. The Commonwealth and each Australian state and territory have passed a National Environment Protection Council Act that establishes the Council and a mechanism for NEPMs.

20 Refer to footnote 17.

21 National Clean Air Agreement Mid-term Review Report, Commonwealth of Australia 2016. Available at: www.environment.gov.au/protection/air-quality/publications/national-clean-air-agreement-mid-term-review-report.

The 2018-2020 work plan retains the review of the need for the Air Toxics and Diesel Vehicle Emissions NEPMs as a priority area to progress in 2018, through a survey of jurisdictional needs for the NEPMs. If this review concludes the NEPMs should be varied or revoked, this significant body of work would not proceed until the NEPC Act provisions governing these processes are amended to streamline them.

2018-2020 Work plan recommendation:
Update work plan to reflect progressing a review of the need for the Air Toxics and Diesel Vehicle Emissions NEPMs in 2018, with findings to be reported to ministers in 2019.

2.2 Emission reduction measures

Emission reduction measures focus on reducing emissions from key sources or products which significantly contribute to air pollution levels.

The 2015-2017 work plan included actions relevant to managing emissions from important sources of air pollutants, including non-road spark ignition engines and equipment, non-road diesel engines and wood heaters.

Priority area:	
<i>Reduce emissions from non-road spark ignition engines and equipment</i>	Completed

Non-road spark ignition engines and equipment refers to outdoor power equipment (such as lawn mowers, leaf blowers, chainsaws and generators) and marine engines. These products can be a significant source of air pollution, particularly in urban areas. Until recently, Australia had no statutory or policy controls to reduce emissions from these products.

When establishing the 2015-2017 work plan, environment ministers considered a Decision Regulation Impact Statement, which examined options to manage emissions from these products in Australia.²² The preferred option agreed by ministers was to introduce new Commonwealth legislation to enable emissions standards for these products to be set by 2017. This was reflected as an action on the 2015-2017 work plan and has been achieved.

The Commonwealth *Product Emissions Standards Act 2017* (the PES Act) commenced on 15 September 2017. The PES Act establishes a national framework to enable Australia to address the adverse impacts of air pollution from certain products on human health and the environment. It allows the Australian Government Minister for the Environment and Energy to make rules to prescribe emissions-controlled products and emissions standards these products must meet. Under the PES Act, offences relate to the import or supply of emissions-controlled products in Australia if they do not meet prescribed standards.

²² Reducing Emissions from Non-Road Spark Ignition Engines and Equipment: Decision Regulation Impact Statement, September 2015. Available at: ris.pmc.gov.au/2016/05/12/reducing-emissions-small-engines.

New outdoor power equipment and marine engines are the first products to be regulated under the PES Act, with requirements set out in the *Product Emissions Standards Rules 2017*, which commenced in December 2017.²³ From 1 July 2018, only products that have been certified as meeting Australia's emissions standard, or have an exemption, will be allowed into Australia. From 1 July 2019, only products that have been certified as meeting Australia's emissions standard, or have an exemption, will be allowed to be supplied in Australia.

By setting emissions standards and prohibiting the import and supply of high polluting products in Australia, this new legislation will contribute to improving our air quality. The PES Act may also, in the future and depending on government priorities, be used to set emissions standards for other products.

As action to address this priority area has been completed and the new legislation and regulatory arrangements are in place, this priority area has been removed from the work plan.

2018-2020 Work plan recommendation:

Remove priority area and action item from work plan.

Priority area:

Reduce emissions from wood heaters

In progress

When establishing the 2015-2017 work plan, environment ministers agreed the preferred option to manage wood heater emissions was for jurisdictions to adopt the new Australian Standards for efficiency (AS/NZS 4012:2014) and emissions (AS/NZS 4013:2014) for new wood heaters and to share best practice approaches across jurisdictions.²⁴ This was reflected on the 2015-2017 work plan as actions to be implemented commencing in 2017. These actions have progressed to varying degrees by jurisdictions, aligning with their processes to update relevant statutory instruments and policies.

Most jurisdictions have either adopted or are in the process of adopting the new efficiency and emissions standards into their relevant statutory instruments (Table 1). The new emissions standard will also apply a stricter emissions limit of 1.5 grams of PM₁₀ emitted per kilo of fuel burned from 2019, down from 2.5 g/kg. The efficiency standard will increase to a 60 per cent efficiency requirement in 2019, up from 55 per cent.

²³ Information about the PES Act, PES Rules and requirements for outdoor power equipment and marine engines is available at: www.environment.gov.au/protection/air-quality/emissions-standards.

²⁴ Agreed Statement, Fourth Meeting of Environment Ministers, 15 December 2015. Available at: www.environment.gov.au/about-us/mem.

Table 1: Adoption of wood heater emission and efficiency standards

	Mechanism	Status
NSW	Amendment to the <i>Protection of the Environment Operations (Clean Air) Regulation 2010</i> which came into effect November 2016.	Completed
VIC	Amendment to the Victorian Waste Management Policy (Solid Fuel Heating)	In progress, aims to be completed by end 2018
QLD	Amendment to the <i>Environmental Protection Regulation 2008</i> through the <i>Environmental Protection Legislation Amendment Regulation (No. 1) 2016</i>	Completed
TAS	Amendment to the <i>Environmental Management and Pollution Control (Distributed Atmospheric Emissions) Regulations 2018</i>	Completed
WA	Amendment to the <i>Environmental Protection (Domestic Solid Fuel Burning Appliances and Firewood Supply) Regulations 1998</i>	In progress
SA	Amendment to the Environment Protection (Air Quality) Policy 2016	Completed
ACT	Amendments to the <i>Environment Protection Act 1997</i> and associated regulations	Completed
NT	Adopted in principle and administratively at this stage. To be incorporated into framework guideline under development. Adoption via appropriate legislative instrument, such as an Environment Protection Objective under the NT Waste Management and Pollution Control Act, being explored for the long term.	Actions completed and in progress

Best practice approaches to address wood heater emissions have also been implemented by jurisdictions. Table 2 shows some examples of approaches, including audits, education and empowering local government action.

Table 2: Best practice approaches relating to wood heater emissions management

	Approach
NSW	<p>In April-June 2017, the NSW Environment Protection Authority (NSW EPA) undertook a domestic wood heater compliance audit program to assess the level of industry compliance with certification and labelling requirements. The program also aimed to improve manufacturers' and retailers' awareness and understanding of legislative requirements and relevant standards. Thirty businesses representing all major manufacturers, distributors and wholesalers in NSW were audited. The results published in September 2017 indicated that most wood heaters currently sold in NSW are certified as compliant with the new standards.²⁵</p> <p>Based on social research in the Upper Hunter, in 2016-2017 NSW EPA developed a new package of education materials to raise awareness about wood smoke impacts on human health and the environment. The package was successfully trialled in Singleton and Muswellbrook during winter 2017 and will be made available for all councils prior to the 2018 winter season.</p>
VIC	Victoria continues to provide incentives for nominated high efficiency gas and electric heaters under the Victorian Energy Efficiency Target. Energy Saver incentives are also available for some home insulation and weatherproofing to support reduced energy use.

²⁵ Environment Compliance Audit Report: Wood heater industry sector in NSW, NSW Environment Protection Authority, September 2017. Available at: www.epa.nsw.gov.au/licensing-and-regulation/licensing/environment-protection-licences/compliance-audit-program.

Approach	
TAS	The annual Burn Brighter this Winter programs and other wood heater smoke surveys undertaken in the Domestic Smoke Management Program continue to monitor and assist local government in addressing emissions from domestic wood heaters, and assist in determining population exposure to particulates.
WA	<p>During 2017 the WA Department of Water and Environmental Regulation (DWER) provided support and tools for environmental health officers in local governments to reduce the impacts of wood smoke. A wood heater demonstration trailer features a wood heater compliant with AS/NZS 4012:2014 and AS/NZS 4013:2014 and a wood heater not compliant with the standards. It is used to show the different wood heater features, correct wood heater operation and the differences in smoke and heat output. The trailer was shown at community events in five regional and two Perth metropolitan areas in 2016-2017.</p> <p>DWER's BurnWise program delivered workshops on the wood smoke management guide and use of toolkits to local government environmental health officers from the Shires of Esperance and Kalgoorlie.²⁶</p>
SA	<p>During 2017, local government powers were increased to address nuisance issues, including impacts of wood heater smoke, through the <i>Local Nuisance and Litter Control Act</i>, which came into force on 1 July 2017.</p> <p>The South Australian government also commenced a series of projects to characterise the impacts of domestic wood smoke emissions on communities in metropolitan Adelaide and regional centres.</p>
ACT	The ACT Government has a number of ongoing initiatives to address impacts from domestic wood heater emissions including, the annual Burn Right Tonight community education campaign on the correct operation of wood heaters, the Wood Heater Replacement Program to remove inefficient wood heaters and the regulation of fire wood merchants to ensure quality and sustainability of the fuel source. The ACT undertook a compliance audit of all wood heater retailers in the ACT following passage of the legislation to introduce the standards and all were compliant.

Overall, jurisdictional actions to implement the new wood heater efficiency and emissions standards, and best practice approaches, are well progressed. This priority area is retained on the work plan as the standards are still to be implemented in some jurisdictions, and there remains a commitment to sharing best practice approaches across jurisdictions to manage wood heater emissions in-service.

2018-2020 Work plan recommendation:

Retain reduction of emissions from wood heaters as a priority area. Update action to reflect a focus on jurisdictions completing adoption of wood heater emission and efficiency standards in 2018 and continuing to share best practice management approaches.

²⁶ More details are available at: www.der.wa.gov.au/our-work/programs/burnwise.

Priority area:

Management of non-road diesel engine emissions

**One action completed, one
action in progress**

Non-road diesel engines are used in a wide range of sectors and applications, including construction, mining, industry, power generation, agriculture, marine applications, forestry and logging, and horticulture. They emit particles (mainly PM_{2.5}), oxides of nitrogen, volatile organic compounds and a range of air toxics, which are harmful to human health.

While on-road diesel vehicles have been subject to increasingly stringent emission standards and state and territory emission reduction programs, non-road diesel engine emissions have remained unregulated in most jurisdictions in Australia except for engines used in underground mining. Regulations for non-road diesel engines have been implemented in the United States and the European Union since the 1990s, and have subsequently been introduced by other jurisdictions including Canada, Japan, India, China, Brazil and Russia.

The 2015-2017 work plan included two actions relating to managing non-road diesel engine emissions in Australia: NSW EPA's Diesel and Marine Emissions Management Strategy, and evaluating the potential for a national approach to managing non-road diesel emissions.

NSW EPA's Diesel and Marine Emissions Management Strategy

The NSW EPA's Diesel and Marine Emissions Management Strategy released in 2015, aims to reduce emissions from priority sectors which, to date, have been a significant but unregulated source of PM_{2.5}, oxides of nitrogen and sulfur dioxide.²⁷ The strategy set out actions to address emissions from non-road diesel equipment and diesel locomotives operating in NSW and shipping.

The action on the 2015-2017 work plan was for the strategy to be implemented by 2016. An overview of key outputs of the strategy is provided in Table 3.

²⁷ Diesel and marine emissions management strategy, NSW Environment Protection Authority January 2015. Available at: www.epa.nsw.gov.au/your-environment/air/non-road-diesel-marine-emissions/diesel-marine-emissions-strategy.

Table 3: Key outputs of the Diesel and Marine Emissions Management Strategy

Element	Outputs
Non-road diesel plant and equipment	<p>Based on recommendations from the EPA's NSW Coal Mining Benchmarking Study – <i>Best practice measures for reducing non-road diesel exhaust emissions</i>, the EPA released a draft Pollution Reduction Study (PRS) and draft Special Licence Condition (SLC) for consultation with the coal mining industry in early 2017. The PRS requires information from operating open-cut coal mines in NSW on the emission performance of the existing non-road diesel fleet, measures already applied that impact on emissions and fuel efficiency, and investigation of any further reasonable and feasible measures that could be implemented to reduce particle emissions. The draft SLC requires new non-road diesel equipment commissioned at NSW coal mines from January 2019 to meet the United States Environmental Protection Agency (US EPA) Tier 4 final emission standard. The EPA is reviewing submissions received during the PRS and SLC consultation and will consult with industry on its response with an aim to finalise the PRS and SLC.</p> <p>In 2016-17 the Office of Environment and Heritage continued to administer the NSW Government Resource Efficiency Policy (GREP). The policy includes requirements to address non-road diesel engine emissions through government procurement and contracts.</p> <p>GREP Clean Air measure A1 requires that, from January 2018, the minimum performance standard for newly manufactured mobile non-road diesel plant and equipment purchased by government agencies must be US EPA Tier 4 or European Union (EU) Stage IV compliant. For contractor-supplied and leased plant and equipment, NSW Government agencies are required to report mobile non-road diesel engine conformity with US or EU standards, and incorporate a weighting for lower-emission machines in tender selection processes. This measure aims to encourage the use of cleaner machines in government projects and help position industry in the expectation of national standards.</p> <p>The GREP applies to general NSW government sector agencies.²⁸ Applicable agencies are required to provide annual reports to monitor performance against the GREP requirements. The GREP also states that local government, state-owned corporations, public trading enterprises and public financial enterprises are “strongly encouraged to adopt the policy’s approach”.</p>
Locomotives	<p>The NSW EPA completed technical studies in 2015 and 2016 to establish baseline exhaust emissions and fuel consumption of diesel locomotive engines, typically operating in NSW. The studies also looked at the impacts of available emission reduction technologies on locomotive exhaust emissions and fuel performance. The studies showed that particle emission limits conforming with US Tier 0+ emission standards can be achieved through emission upgrade kits or other locomotive upgrade programs in existing diesel locomotives. The EPA is undertaking an economic appraisal of introducing emission reduction limits for existing and new diesel locomotives in NSW, and their impacts on the industry and broader community. The results of these studies will inform the proposed policy and measures.²⁹</p>

²⁸ Sector agencies as defined in: Budget Statement 2017-18: Classification of Agencies, NSW Government. Available at: www.budget.nsw.gov.au/sites/default/files/budget-2017-06/BP%201%20Appendices%20-%20A3.pdf.

²⁹ More details can be found at: www.epa.nsw.gov.au/your-environment/air/non-road-diesel-marine-emissions/reducing-diesel-emissions-locomotives.

Element	Outputs
Review of regulatory framework for the NSW operational rail sector	Consultation was ongoing in 2016-17 for the review of the regulatory framework for managing impacts from NSW rail system activities. An assessment of options concluded the most effective and practical approach to regulating environmental impacts from rail operations is to license both railway system operators and rolling stock operators, under the <i>Protection of the Environment Operations Act 1997</i> , for the activities under their respective control. This would make rolling stock operators directly accountable to the EPA for their environmental performance, including for emissions from diesel locomotives. This proposal is being considered by the NSW Government. ³⁰
Shipping	<p>NSW introduced low sulfur fuel requirements for cruise ships in Sydney Harbour. These requirements were then superseded by Commonwealth legislation and the specifications for the fuel used by cruise ships in Sydney Harbour is no longer regulated under NSW legislation.</p> <p>The Commonwealth is responsible for the regulation of fuel used for all ships, including cruise ships, in Sydney Harbour and regional NSW ports. Globally, the cap on the sulfur content of ships' fuel will reduce from 3.5 per cent to 0.5 per cent from 1 January 2020.³¹</p> <p>The Commonwealth introduced specific requirements in December 2016 for cruise ships to use 0.1 per cent or less sulfur fuel while at berth in Sydney Harbour.</p>

NSW is developing a 10-year Clean Air for NSW Strategy, with public consultations including a stakeholder summit held in 2017, to inform the final strategy. As part of this process, the Diesel and Marine Emissions Management Strategy has been reviewed to identify completed programs and areas for additional action. Therefore this action has been removed from the work plan. The significant work achieved under the strategy will help evaluate the potential for a national approach to manage non-road diesel engine emissions (next section).

Evaluate potential for a national approach to manage non-road diesel and marine engine emissions

During the 2015-2017 work plan period, efforts focused on implementing NSW EPA's Diesel and Marine Emissions Management Strategy, which is informing practical approaches to managing non-road diesel engine emissions at the state level.

Evaluating the potential for a national approach to manage non-road diesel engine emissions is retained on the 2018-2020 work plan, with an updated timeframe.

2018-2020 Work plan recommendation:

Remove NSW EPA's Diesel and Marine Emissions Management Strategy from the work plan.

Update priority area and action to reflect that the Commonwealth and NSW will evaluate the potential for a national approach to manage non-road diesel engine emissions by the end of 2019.

30 More details can be found at: www.epa.nsw.gov.au/licensing-and-regulation/licensing/environment-protection-licences/scheduled-activities-amendment-exhibition.

31 More details can be found at: www.imo.org/en/MediaCentre/PressBriefings/Pages/MEPC-70-2020sulphur.aspx.

2.3 Partnerships and cooperation

Partnership and cooperation opportunities have the potential to complement government action towards good air quality outcomes. These opportunities could be between government and the non-government sector, or between governments. The 2015-2017 work plan included scope to explore opportunities with the non-government sector on non-regulatory approaches to manage air quality, and to enhance the sharing of experiences between governments in implementing air management strategies. Collectively such opportunities can help to manage Australia's air quality into the future.

Priority area:

Explore partnerships with non-government stakeholders to positively influence air quality outcomes

One action completed, others ongoing

As part of core business, governments routinely engage with non-government stakeholders to help inform and/or undertake approaches to address issues and achieve better outcomes. Regarding this priority area, three actions were listed on the 2015-2017 work plan:

- a one-year Clean Air Champions initiative aimed at raising awareness and engaging industry and the community on clean air issues. This initiative was completed in mid-2016, and has been removed from the work plan.
- two actions relating to ongoing engagement with the non-government sector to identify non-regulatory ways to manage air quality, and to better integrate air quality management in new infrastructure developments and upgrades.

A range of activities undertaken against these latter two actions were previously reported.³² A number of these are ongoing, such as EPA Tasmania's involvement in the Coordinated Smoke Management Strategy³³, the Western Australian government's involvement in the Air Quality Coordinating Committee³⁴, and Queensland's discussions with coal transporters to reduce coal dust emissions and share monitoring data.

Recent partnership opportunities include:

- EPA Tasmania partnering in the collaborative AirRater project to monitor air quality and to create a smartphone application to report air pollution. The improved alert system delivers air quality and weather-related health information to the public. EPA Tasmania was a member of a consortium, led by the University of Tasmania and including the Australian National University and CSIRO, that was successful in obtaining funding through Sense-T for the project.
- The Australian Government is providing \$1 million funding to support surf life saving clubs upgrade to cleaner outboard engines that meet the new emissions standards under the PES Act. In 2017 the

³² National Clean Air Agreement Mid-term Review Report, Commonwealth of Australia 2016. Available at: www.environment.gov.au/protection/air-quality/publications/national-clean-air-agreement-mid-term-review-report.

³³ The Coordinated Smoke Management Strategy brings together State Government and Industry in the management of smoke from planned burns. More details can be found at: epa.tas.gov.au/epa/air/management-of-planned-burning.

³⁴ The Air Quality Coordinating Committee includes representatives from government, industry, business and the community. More details can be found at: www.der.wa.gov.au/about-us/committees.

Department of the Environment and Energy partnered with Surf Life Saving Australia to deliver grants of up to \$1,000 per clean outboard engine over the next four years to support this important organisation and its clubs across Australia.

Engagement with the non-government sector remains an ongoing priority area. As the two actions on the 2015-2017 work plan describe similar activities in seeking better air quality outcomes, they have been combined to form a single ongoing action, broadened to recognise potential opportunities to pursue through engagement.

2018-2020 Work plan recommendation:

Remove Clean Air Champions initiative from the work plan.

Re-frame the existing two actions into one broad action that recognises ongoing engagement with the non-government sector to seek opportunities to influence positive air quality outcomes.

Priority area:

Improve exchange of information and experiences in implementing air quality management/monitoring tools across jurisdictions

Completed

The action proposed including an information exchange as a standing item in key forums and other appropriate future forums. Australian governments already participate in various fora to discuss and exchange information on air quality management, monitoring and new developments in policy, technical aspects and human health. Government fora include the National Environment Protection Council, Meeting of Environment Ministers, Senior Officials Group, Air Project Management Group and Heads of Environment Protection Authorities meetings.

In addition, governments attend conferences such as the Clean Air Society of Australia and New Zealand biennial conference that brings together international experts, academics, regulators, technicians and community members. Other activities such as collaborative research and workshops also facilitate information exchange. Each action item in the work plan typically includes elements of consultation between governments and with non-government stakeholders.

Given these established and business-as-usual avenues of information exchange across jurisdictions, this item does not need to be explicitly referenced as a priority area or action. Therefore it has been removed from the work plan.

2018-2020 Work plan recommendation:

Remove priority area and action from the work plan.

2.4 Better knowledge, education and awareness

Knowledge, education and awareness are essential requirements to inform policy decisions and to help empower communities and individuals to better deal with air pollution and their personal exposure to it. Knowledge may be gained through experience, information sharing and research. It is critical to plug existing data gaps, identify future trends to help focus efforts in managing air quality, and explore innovative measures to address air pollution.

The 2015-2017 work plan included actions aimed at improving access to reliable air quality information for policy makers, researchers and the community.

Priority area:

Improve access to reliable air quality information for researchers, policy makers and the community

**One action not progressed,
one action in progress**

Two actions related to this priority area were listed on the 2015-2017 work plan.

Proposed National Air Quality Data Service

The action was for a proposed National Air Quality Data Service (NAQDS), delivering national consistent air quality data and statistics four times a year (ongoing from mid-2017).

The Bureau of Meteorology explored options to develop an operational National Air Quality Data Service (NAQDS) to address current and emerging national environmental reporting and policy needs. The first stage of work focussed on improving the understanding of stakeholder requirements, resulting in the 2016 release of the NAQDS Business Requirements Study report.³⁵ While preliminary costings to develop an operational service were completed, resourcing limitations prevented any project commencement.

The Bureau is liaising with selected jurisdictions to implement a reduced solution by leveraging the National Environmental Monitoring Sites Register to initially register selected air quality monitoring stations in one system. Although it is not a replacement for an operational NAQDS, the work will help to better understand the extent of the monitoring network and emerging data.

In this regard, the action to develop an operational NAQDS has been removed from the work plan.

National Environmental Science Programme – Clean Air and Urban Landscapes Hub

The Clean Air and Urban Landscapes (CAUL) Hub, funded under the Australian Government's National Environmental Science Programme (NESP), is undertaking research to enhance our understanding of, and to improve, air quality.³⁶ The CAUL Hub comprises six key projects, including the *Western Air-Shed and Particulate Study for Sydney*, which will develop tools and evidence to support a Clean Air Plan for

³⁵ National Air Quality Data Service: Business Requirements Study, Environmental Information Program Publication Series No. 7, Bureau of Meteorology, Australia. Available at: www.bom.gov.au/environment/doc/NAQDS-business-requirements-study.pdf.

³⁶ More information about the CAUL Hub is available at: www.nespurban.edu.au.

Western Sydney, and *Air quality in Australia*, which will support the National Pollutant Inventory (see below), support cost-effective policies to reduce the impact of smoke on health and deliver indoor air quality research.

The CAUL Hub is collaborating with researchers at the NSW Office of Environment and Heritage and CSIRO to deliver the Clean Air Plan for Western Sydney. As part of this project, the CAUL Hub is implementing its program of targeted measurement campaigns. Recent research activities include using open path instruments to measure trace gas concentrations in Western Sydney, and personal measurement devices to track air quality along commuter routes. The CAUL Hub is also contributing towards future integration of satellite data products into their air quality monitoring and modelling to improve future chemical weather forecasting.

In Melbourne, the CAUL Hub is trialling the collection of data from wearable personal air quality monitors, connected via Bluetooth to mobile devices, to better understand localised (disaggregated) pollution across cities and improve estimates for personal exposure. This crowdsourcing, or citizen science, approach to collecting data is intended to augment the information captured by permanent monitoring stations logging PM_{2.5}.

The CAUL Hub is also broadening the study of wood smoke to consider constituents other than PM_{2.5}. This leverages existing activities in Western Sydney. Depending on findings, this will give a clearer picture of the health impacts of wood smoke and help inform analysis for reduction initiatives.

2018-2020 Work plan recommendation:

Remove the development of a National Air Quality Data Service priority area and action from the work plan.

Retain the National Environmental Science Programme – Clean Air and Urban Landscapes Hub priority area and action.

Priority area:

National Pollutant Inventory reforms

In progress

The National Environment Protection (National Pollutant Inventory) Measure establishes the National Pollutant Inventory (NPI). It provides the community, industry and government with free information about substance emissions in Australia and has emission estimates for 93 toxic substances and the source and location of these emissions.

The Australian Government Department of the Environment and Energy has been leading NPI reforms to improve efficiencies for government, streamline processes and reduce burden on business, while improving data accessibility and usefulness.

On 31 March 2017, the Department delivered its first routine publication of NPI facility data to data.gov.au, improving the accessibility of NPI data for re-use and analysis by governments, researchers, and the community.

Other work to maintain and improve NPI systems is ongoing and the Department continues to pursue opportunities for improvements to streamline administrative processes and work effectively with industry to monitor emissions of toxic substances.

On 25 November 2016, the Council agreed to terms of reference for a review of the NPI.³⁷ These include identifying whether the right substances are reported, the most valuable information is collected and whether its collection is cost-effective. The review is underway and the Department plans to report to the Council later in 2018.

The Department remains committed to reforming the NPI and acknowledges the valuable engagement from state and territory agencies towards this work.

This work remains a priority area in the work plan. The review work is now reflected in the work plan.

2018-2020 Work plan recommendation:

Update the action to reflect completing the review of the NPI according to the terms of reference agreed by the Council in 2016 and to implement review outcomes as agreed by the Council.

³⁷ Terms of reference available at: www.npi.gov.au/resource/national-pollutant-inventory-review-2017-terms-reference.

3 Priority Setting

Priority area:

Establishment and implementation of priority setting process and work plan

Completed

The action was to establish the Air Project Management Group in the second half of 2015 and to have a priority setting process established in the first half of 2016.

The priority setting process was developed by the Air Project Management Group and endorsed by the Senior Officials Group in October 2016.³⁸ The process builds on the overarching framework in the agreement and sets guidance criteria to help governments determine whether an air quality issue should be prioritised for future action under the agreement and included on the work plan. It also identifies government roles and responsibilities in delivering the actions agreed by environment ministers.

Priority setting activities ensure that agreed actions are practical, efficient and effective, do not duplicate existing national air quality management arrangements or those specific to a jurisdiction, and complement other government strategies. As the process is now established this action has been removed from the work plan.

In reviewing work plans, the Air Project Management Group will use the priority setting process to recommend new actions to be included.

The following are being considered through the priority setting process for potential future recommendation for inclusion on the work plan.

National approach to emissions inventories for air quality management

Emissions inventories provide essential information for the management of air quality. For example, they provide:

- estimates of emissions of pollutants and the relative contributions of different sources
- a starting point for emissions projections
- a key data input for many scientific studies on air quality, especially modelling, and forecasting air pollution impacts to guide issuing pollution alerts or health advisories
- information that can help frame actions to improve air quality.

Several jurisdictions have emissions inventories for air quality management, but many of the available inventories are out of date. In addition, inventories across jurisdictions are not necessarily developed in the same way.

³⁸ National Clean Air Agreement Priority Setting Process, Commonwealth of Australia 2016. Available at: www.environment.gov.au/protection/air-quality/publications/national-clean-air-agreement-priority-setting-process.

Developing a nationally consistent approach to emissions inventories for air quality management would enable better integration between jurisdictions. It would provide opportunities to develop efficient processes, technologies and methodologies that improve emissions estimates and how jurisdictional inventories are used.

These processes will take into account the National Pollutant Inventory review, mentioned above.

National implementation of air quality smartphone app

AirRater is a smartphone app which provides end-users with easy access to real-time, locally-specific information on air pollutants, pollen and other environmental hazards (such as heat-waves). If they choose, end-users can also enter securely-held data on their symptoms and medication use, which the app can use to generate customised health alerts, tailored to each individual's response to different types and levels of environmental triggers.

The AirRater app has been used in Tasmania since 2015, the Australian Capital Territory since 2017 and is in the initial stages of being considered for the Northern Territory, in partnership with its developers.

4 Summary

The formulation of a new National Clean Air Agreement work plan helps ensure the Commonwealth and the states and territories continue to work collaboratively to ensure a clean air future for Australia.

A number of actions from the 2015-2017 work plan have been successfully completed and removed from the work plan, including the items relating to the variation of the Ambient Air Quality NEPM, the review of the *Fuel Quality Standards Act 2000* and the development of regulations relating to non-road spark ignition engines and equipment. These items have furthered the objectives of the agreement by establishing clear, internationally harmonised standards for emissions and air quality, while also ensuring the standards are meeting their objectives and not creating an unnecessary regulatory burden for governments and industry.

The review also found that a number of actions remain relevant to the work plan, and will be retained with updates. Such items include the management of non-road diesel emissions, the development of partnerships with non-government stakeholders, and National Pollutant Inventory reforms.

The development of the priority setting process under the agreement has ensured that there is a consistent means to assess new priorities and recommend the addition of items to the work plan which would contribute to the objectives of the agreement.

Appendix A:

National Clean Air Agreement— Work Plan

The National Clean Air Agreement provides for a rolling program of activities, as specified in the work plan, to respond to air quality priorities.

The work plan will be formally reviewed by Environment Ministers every two years, to ensure that actions under the Agreement remain relevant and to maintain accountability for delivery. This does not preclude an action being completed or implemented ahead of this timeframe, nor priorities being identified for potential inclusion in the work plan in the interim. The agreed work plan, including updates, will be made publicly available.

Work plan – 2018 to 2020

The 2018-2020 work plan updates the 2015-2017 work plan by removing those actions that have been completed and updating ongoing actions. It continues to cover a range of long-standing air quality priorities, as well as supporting delivery of a number of new initiatives and scoping projects regarding air quality issues.

Work Plan 2018-2020

Approach	Priority areas	Lead	Action/Timeframe
Standards	Review latest scientific evidence of health impacts in relation to annual average PM ₁₀ standards in the National Environment Protection (Ambient Air Quality) Measure	NSW and VIC	Commence review of latest scientific evidence of health impacts following update of the World Health Organization's current (2005) ambient air quality standard guidelines expected in 2019.
	Complete review of National Environment Protection (Ambient Air Quality) Measure sulfur dioxide, nitrogen dioxide and ozone standards	VIC	Present proposed standards to the National Environment Protection Council for consideration, with a view to strengthening the standards by the end of 2019.
	Review legislative instruments made under the <i>Fuel Quality Standards Act 2000</i>	Cth	Assess options to improve fuel quality standards through regulation impact statement and public consultation processes during 2018. Outcomes due to be completed by 1 October 2019.
	Review the need for the Air Toxics and Diesel Vehicle Emissions National Environment Protection Measures (NEPMs)	Cth	Complete the review in 2018 through a survey of jurisdictional needs for the NEPMs. If this review concludes that the NEPMs should be varied or revoked, this significant body of work would proceed following amendments to the <i>National Environment Protection Council Act 1994</i> to streamline provisions governing NEPM review processes.
Emission reduction measures	Reduce emissions from wood heaters	All	Jurisdictions to complete adoption of new wood heater emissions and efficiency standards in 2018 and to continue sharing best practice management approaches information.
	Management of non-road diesel engine emissions	Cth and NSW	Evaluate the potential for a national approach to manage non-road diesel engine emissions by the end of 2019.
Partnerships and cooperation	Engage and explore opportunities with non-government stakeholders to positively influence air quality outcomes	All	Seek opportunities to engage with the non-government sector to identify effective non-regulatory approaches to manage air quality and influence better air quality outcomes (ongoing).
Better knowledge, education and awareness	Improve access to reliable air quality information for researchers, policy makers and the community	Cth	National Environmental Science Programme – Clean Air and Urban Landscapes Hub. A six-year funded programme with hubs commencing early 2015.
	National Pollutant Inventory reforms	Cth	Complete the review of the Inventory, in accordance with the Terms of Reference approved by the National Environment Protection Council in November 2016, for its consideration in late 2018. ¹ Commence implementation of review outcomes as agreed by the Council.

¹ Terms of Reference available at: <http://www.npi.gov.au/resource/national-pollutant-inventory-review-2017-terms-reference>.

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