



**Australian Government**

**Department of the Environment and Energy**

# National Clean Air Agreement

Mid-term Review Report



November 2016

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# Contents

1	Purpose of this Report	4
2	Introduction	4
3	Progress Updates	4
4	Standards	5
4.1	Strengthened reporting standards for particles	5
4.2	Review of sulfur dioxide, nitrogen dioxide and ozone standards	8
4.3	Review of <i>Fuel Quality Standards Act 2000</i>	8
4.4	Review need for Air Toxics and Diesel Vehicles NEPMs	9
5	Emission reduction measures	9
5.1	Reduce emissions from non-road spark ignition engines and equipment	9
5.2	Reduce emissions from wood heaters	10
5.3	Management of non-road diesel engine emissions	13
6	Partnerships and cooperation	15
6.1	Explore partnerships with non-government stakeholders	15
6.2	Improve exchange of information and experiences in implementing air quality management/monitoring tools across jurisdictions	18
7	Better knowledge, education and awareness	19
7.1	Proposed National Air Quality Data Service	19
7.2	The NESP CAUL Hub	19
7.3	National Pollutant Inventory reforms	20
8	Priority setting process	20
9	Additional air quality actions	21
9.1	New South Wales—Clean Air Plan	21
9.2	New South Wales—Enhanced air quality monitoring and forecasting	21
9.3	Victoria—Incident air quality monitoring	22
9.4	Victoria—EPA AirWatch	22
9.5	Victoria—Testing particle monitors in high smoke conditions	22
9.6	Tasmania—BLANKET particle monitoring network	23
9.7	Western Australia—CleanRun program	23
9.8	South Australia – Review of Air Science Programs	23
9.9	Australian Capital Territory—Renewable Energy Target and Energy Efficiency Improvement Scheme	24
9.10	Australian Capital Territory—Clean Air and Urban Landscapes	24
9.11	Commonwealth—Ministerial forum on vehicle emissions	25
10	Summary	25

# 1 Purpose of this Report

This Mid-term Review Report gives a progress update against the National Clean Air Agreement's initial two-year work plan since its establishment on 15 December 2015. This precedes a formal review of the agreement and its work plan by Environment Ministers, scheduled for December 2017.

The report also highlights activities undertaken by jurisdictions in addition to those on the initial work plan towards improving air quality.

The report has been compiled 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 each state and territory from agencies responsible for air quality issues.

## 2 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.<sup>1</sup>

The agreement complements and builds on existing air quality management strategies to ensure a clean air future.<sup>2</sup> It sets an overarching framework to assist Australian governments to identify and prioritise air quality actions that would benefit from national collaboration to deliver health, environmental and economic outcomes for Australians. It acknowledges the role of different levels of government in managing air quality and recognises that business and the community need to be active to achieve good air quality outcomes.

At the establishment of the agreement, Environment Ministers agreed an initial two-year work plan that comprises a range of new, existing and complementary actions and identifies the roles and responsibilities and timeframes for implementing those actions to address agreed priorities.<sup>2</sup>

## 3 Progress Updates

The agreement's initial two-year work plan identifies priority actions under each of four strategic approaches:

- Standards (Section 4)
- Emission reduction measures (Section 5)
- Partnerships and cooperation (Section 6)
- Better knowledge, education and awareness (Section 7).

The following sections of this report provide progress updates against each of the actions under these strategic approaches over the first 12 months since the agreement was established. Actions undertaken by jurisdictions in addition to those on the initial two-year work plan towards improving air quality are also highlighted in Section 9.

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<sup>1</sup> Agreed Statement, Fourth Meeting of Environment Ministers, 15 December 2015. Available at: [www.environment.gov.au/about-us/mem](http://www.environment.gov.au/about-us/mem)

<sup>2</sup> National Clean Air Agreement and initial two-year work plan available at: [www.environment.gov.au/protection/air-quality/publications/national-clean-air-agreement](http://www.environment.gov.au/protection/air-quality/publications/national-clean-air-agreement)

## 4 Standards

Standards ensure a consistent approach to monitoring and reporting air quality, reducing air pollution and limiting emissions from certain sources. The agreement's initial two-year work plan includes implementing strengthened reporting standards for particulate matter; work towards strengthening the reporting standards for sulfur dioxide, nitrogen dioxide and ozone; a review of the need for two National Environment Protection Measures related to air toxics and diesel vehicle emissions; and a review of the *Fuel Quality Standards Act 2000*.

### National Environment Protection (Ambient Air Quality) Measure

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. The Ambient Air Quality NEPM is implemented by the states and territories, who 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).<sup>3</sup> They are generally based on World Health Organization guidelines to ensure the adequate protection of human health from air pollution. It is important that these standards are reviewed periodically as the latest scientific evidence regarding the health impacts of air pollutants becomes available.

A 2011 review of the Ambient Air Quality NEPM recommended that all of the standards be reviewed to consider new evidence around the health effects of air pollution.<sup>4</sup>

The agreement's work plan includes two key initial actions for the Ambient Air Quality NEPM including strengthening the reporting standards for particles and undertaking a review of the ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>) and sulfur dioxide (SO<sub>2</sub>) standards, with a view to strengthen these standards as well.

### 4.1 Strengthened reporting standards for particles

The work to vary the reporting standards for particles was led by the New South Wales Environment Protection Authority (NSW EPA).

On 15 December 2015, the Council agreed to strengthen the reporting standards for particles, taking into account the latest scientific evidence which shows that any level of airborne particles can be harmful to human health. The most compelling epidemiological evidence and the greatest health impacts and costs are associated with exposure to fine particulate matter (PM<sub>2.5</sub>). In addition, the Council considered over 140 public submissions on the proposed updated standards.<sup>5</sup>

The updated standards (Table 1) came into effect on 4 February 2016 after the varied Ambient Air Quality NEPM was registered on the Federal Register of Legislation.

<sup>3</sup> The National Environment Protection Council comprises Environment Ministers and makes decisions regarding National Environment Protection Measures under the NEPC Act.

<sup>4</sup> 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](http://www.nepc.gov.au/resource/national-environment-protection-ambient-air-quality-measure-review-review-report)

<sup>5</sup> All information relating to the variation to the particle standards, including an Impact Statement examining the costs and benefits of updated standards, public submissions, Council's response to submissions, and the updated standards is available via: [www.nepc.gov.au/resource/variation-ambient-air-quality-nepm-particles-standards](http://www.nepc.gov.au/resource/variation-ambient-air-quality-nepm-particles-standards)



**Table 1: Updated reporting standards for particles**

Pollutant	Averaging period	Standard	Goal by 2025	Change
PM <sub>2.5</sub>	24-hour	25 µg/m <sup>3</sup>	20 µg/m <sup>3</sup>	Same limits. Both 24-hour and annual standards are now compliance (not advisory) reporting standards.  Goals to move to tighter 24-hour and annual PM <sub>2.5</sub> standards by 2025 introduced.
	Annual	8 µg/m <sup>3</sup>	7 µg/m <sup>3</sup>	
PM <sub>10</sub>	24-hour	50 µg/m <sup>3</sup>	N/A	No change—retained.
	Annual	25 µg/m <sup>3</sup>	N/A	Introduced.

Other updates made to the Ambient Air Quality NEPM are:

- Replacement of the five-day exceedance form of the 24-hour PM<sub>10</sub> standard with an exceptional events rule, that also applies to the 24-hour PM<sub>2.5</sub> standard. In addition to the required daily and annual reporting requirements, this rule allows for extenuating circumstances such as fire activity (bushfires and authorised hazard reduction burns) and dust storms that lead to high pollution days (exceedance of the 24-hour standards) to be recorded and described.
- A nationally consistent and more transparent approach to reporting population exposure to PM<sub>2.5</sub> (to commence from June 2018).
- Updates to references to current Australian Standards which set out monitoring methods undertaken by the states and territories in reporting against the standards.

The states and territories are adopting these updates in their jurisdictions according to their legislative arrangements and policies, as outlined in Table 2. The Commonwealth does not implement the new standards and requirements but has an administrative role.

The new national standards for PM<sub>2.5</sub> are more health protective than World Health Organization guidelines, and are the most health protective package of particle standards and long-term targets of any country in the world.

Victoria has adopted a more stringent PM<sub>10</sub> annual average reporting standard of 20 µg/m<sup>3</sup> to reflect World Health Organization guidelines and national Environmental Health Standing Committee recommendations.<sup>6</sup> The Australian Capital Territory has also adopted this standard, and South Australia is considering adopting this standard. These jurisdictions will also continue to report against the national PM<sub>10</sub> annual average reporting standard of 25 µg/m<sup>3</sup>.

Reporting against both a more stringent PM<sub>10</sub> annual average standard of 20 µg/m<sup>3</sup> and the new national PM<sub>10</sub> annual average standard of 25 µg/m<sup>3</sup> will assist the review of the PM<sub>10</sub> standards in 2018, agreed by the Council. Victoria and New South Wales will co-lead this review, to commence following the current review of World Health Organization guidelines.

6 Environmental Health Standing Committee recommendations available at: Appendix C of Draft Variation to the National Environment Protection (Ambient Air Quality) Measure Impact Statement, Prepared for National Environment Protection Council, 2014 [www.environment.gov.au/system/files/pages/dfe7ed5d-1eaf-4ff2-bfe7-dbb7ebaf21a9/files/aaq-nepm-draft-variation-imp-act-statement-appendices.pdf](http://www.environment.gov.au/system/files/pages/dfe7ed5d-1eaf-4ff2-bfe7-dbb7ebaf21a9/files/aaq-nepm-draft-variation-imp-act-statement-appendices.pdf)

**Table 2: Implementation of the updated particle standards by states and territories**

	Mechanism	Status
NSW	Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (Approved Methods) under the <i>Protection of the Environment Operations (Clean Air) Regulation 2010</i>	The Approved Methods list the statutory methods to model and assess air pollutant emissions from stationary sources. They have historically adopted the Ambient Air Quality NEPM standards as assessment criteria for pollutants including PM <sub>10</sub> , NO <sub>2</sub> , SO <sub>2</sub> , carbon monoxide and lead. The NSW EPA is reviewing the Approved Methods as part of the NSW Government's response to implement revised national particle standards. A review of the particle impact assessment criteria is planned to be finalised in early 2017.
VIC	Victoria's State Environment Protection Policy (Ambient Air Quality)	The policy was updated on 28 July 2016 to give statutory effect to the updated standards and requirements. A PM <sub>10</sub> annual reporting standard of 20 µg/m <sup>3</sup> was also adopted.
QLD	Environmental Protection (Air) Policy 2008 (EPP Air) under the <i>Environmental Protection Act 1994</i>	Will consider incorporating the updated standards for regulatory purposes in the EPP Air when it is reviewed (due 2018). In the interim, monitoring against the new standards has commenced and this information will be reflected in Queensland's 2016 annual reporting.
TAS	State Policy under the <i>State Policies and Projects Act 1993</i>	Automatically adopted upon variation to the Ambient Air Quality NEPM.
WA	<i>National Environment Protection Council (Western Australia) Act 1996</i> (sections 7 and 23)	Automatically adopted. The 2015 Western Australian air monitoring report complies with the updated Ambient Air Quality NEPM reporting requirements. The Department of Environment Regulation also presents air quality information from its monitoring stations as an air quality index. The current indices are updated hourly. <sup>7</sup>
SA	<p>The varied Ambient Air Quality NEPM (including the strengthened particle standards) is adopted in its own right in South Australia, but has not been formally adopted into other State legislation.</p> <p>The Environment Protection (Air Quality) Policy 2016 includes criteria that are numerically equivalent to the PM<sub>2.5</sub> 24-hour and annual standards, and 24-hour PM<sub>10</sub> standards, but they do not invoke the national standards <i>per se</i>. These values are now South Australian ground level concentration (GLC) criteria. A PM<sub>10</sub> annual GLC is yet to be formally decided.</p>	<p>No practical changes have been required for reporting against the two PM<sub>2.5</sub> standards and the PM<sub>10</sub> 24-hour standard by the South Australian Government, which has been reporting against the advisory reporting standards since their inception. Adoption of a more stringent PM<sub>10</sub> annual reporting standard of 20 µg/m<sup>3</sup> is being considered.</p> <p>Relevant GLCs are applied as South Australian criteria for regulatory assessments of environmental risks (at receptors) of activities of environmental significance, under Part 6 of the <i>Environment Protection Act 1993</i>. This is based on the robust health assessments undertaken when they were originally made. However, the protocols for measurement and reporting have not been adopted into the Policy, providing for flexibility in applying them within the regulatory environment.</p>

7 Available at: [www.der.wa.gov.au/your-environment/air/203-air-quality-publications](http://www.der.wa.gov.au/your-environment/air/203-air-quality-publications)

	Mechanism	Status
NT	There is no formal adoption mechanism at this stage. An Environment Protection Objective under the <i>Waste Management and Pollution Control Act</i> is being considered.	The new standards and requirements have been adopted administratively.
ACT	<i>Environment Protection Act 1997</i>	Adopted March 2016. A PM <sub>10</sub> annual average reporting standard of 20 µg/m <sup>3</sup> was also adopted. Reporting against the new standards and requirements will be included in the ACT's Annual Air Quality Report. <sup>8</sup>

## 4.2 Review of sulfur dioxide, nitrogen dioxide and ozone standards

The Victorian Environment Protection Authority is currently leading a review of the reporting standards in the Ambient Air Quality NEPM for maximum ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>) and sulfur dioxide (SO<sub>2</sub>) concentrations.

It is anticipated that the Council will consider whether to form an intent to vary the Ambient Air Quality NEPM in relation to these standards in the second half of 2017. Should the Council decide to form the intent, a public consultation process will be triggered under the NEPC Act. This includes the release of an Impact Statement that considers the latest health evidence, options for strengthened standards and their likely costs and benefits.

The review of the standards is currently expected to be completed and recommendations for new standards presented to the Council in mid-2018 for a final decision on whether to vary the standards in the Ambient Air Quality NEPM. In making the final decision, the Council would also consider the public submissions received.

## 4.3 Review of *Fuel Quality Standards Act 2000*

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, in order to reduce emissions that may cause environment and health problems.

A review of the Act was completed in April 2016.<sup>9</sup> The review found that 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. It recommended that the Act be retained, with amendments.

To further reduce toxic emissions and improve air quality, the legislative instruments made under the Act will be reviewed, including individual fuel standards such as those for petrol and diesel.

This work complements the work of the Ministerial Forum on Vehicle Emissions, which was established to reduce harmful emissions on Australian roads and in our cities from motor vehicles (Section 9 refers).

<sup>8</sup> To be available via: [www.accesscanberra.act.gov.au/app/answers/detail/a\\_id/1320#tabs-2](http://www.accesscanberra.act.gov.au/app/answers/detail/a_id/1320#tabs-2)

<sup>9</sup> Review report available at: [www.environment.gov.au/protection/fuel-quality/legislation/review-2015](http://www.environment.gov.au/protection/fuel-quality/legislation/review-2015)



## 4.4 Review need for Air Toxics and Diesel Vehicles NEPMs

The third review of the National Environment Protection Acts (Commonwealth, State and Territory) found that the Air Toxics and Diesel Vehicle Emissions NEPMs are close to having achieved their desired outcomes.<sup>10</sup> The Council responded that they would give consideration to determining if these two NEPMs are still required to meet future needs or if revocation should be considered.

The review also noted that the legislated process to revoke a NEPM is a significant barrier to revoking otherwise redundant regulation and recommended that the NEPC Act should be amended to allow for a streamlined process to revoke NEPMs.

Preliminary assessment by the Commonwealth, as lead, has highlighted that ongoing costs associated with implementing the Air Toxics and Diesel Vehicle Emissions NEPMs are limited and that the process to review and vary or revoke the NEPMs would be unduly time and cost-intensive under the current requirements of the NEPC Act. As such, review or revocation of these two NEPMs would be best considered following amendments to the NEPC Act to better streamline the legislative processes to review and vary or revoke a NEPM.

# 5 Emission reduction measures

Emission reduction measures are targeted towards reducing air pollution and/or population exposure to air pollution, with associated health benefits. They focus on sources, including from products, which continue to significantly contribute to air pollution levels and may not currently be managed by other means.

The agreement's initial two-year work plan includes implementing decisions taken by Environment Ministers on 15 December 2015 to establish emission standards for non-road spark ignition (i.e. petrol and gas-powered) engines and equipment (such as garden equipment and marine outboard motors); best practice approaches to reduce wood heater emissions; and examine the potential for a national approach to manage non-road diesel and marine engine emissions.

## 5.1 Reduce emissions from non-road spark ignition engines and equipment

Non-road spark ignition engines and equipment can contribute significantly to air pollution in Australia, particularly in urban areas. These products, which include mowers, chainsaws, generators and outboards, generally do not have the same advanced emission controls found in on-road engines, so they are high polluters relative to their size. High emitting products are banned in overseas markets like the United States, Canada and Europe. Currently in Australia, there are no direct controls of emissions from these products.

On 15 December 2015, Environment Ministers considered a Decision Regulation Impact Statement which examined options to manage emissions from non-road spark ignition engines and equipment in Australia.<sup>11</sup> The preferred option agreed by ministers is to introduce new Commonwealth legislation to enable emission standards for these products to be set.<sup>12</sup>

<sup>10</sup> Review report and Council's response available at: [www.nepc.gov.au/publications/third-review-nepc-act](http://www.nepc.gov.au/publications/third-review-nepc-act)

<sup>11</sup> Reducing emissions from non-road spark ignition engines and equipment. Decision Regulation Impact Statement September 2015. Available via: [www.environment.gov.au/protection/air-quality/non-road-spark-ignition-engines-and-equipment](http://www.environment.gov.au/protection/air-quality/non-road-spark-ignition-engines-and-equipment)

<sup>12</sup> Agreed Statement, Fourth Meeting of Environment Ministers, 15 December 2015. Available at: [www.environment.gov.au/about-us/mem](http://www.environment.gov.au/about-us/mem)

The Australian Government Department of the Environment and Energy (the Department) has since been working to develop and introduce framework legislation, to enable national product emission standards to be set and administered. The first emission standards to be set under this legislation framework will be for non-road spark ignition engines and equipment. However, this framework legislation may, in the future and depending on government priorities, be used to set emission standards for other products. The timing of establishing the new framework legislation is subject to Parliamentary scheduling.

In parallel to this process, the Department continues to engage with industry stakeholders in developing the emission standards themselves. The standards are anticipated to come into effect in 2018.

Related to the non-road spark ignition engines and equipment emission standards is the Australian Government's commitment to provide \$1 million funding to surf life saving clubs to assist their upgrades to cleaner outboards, in order to be compliant with the new emission standards. These grants will also support practical local action to tackle climate change while providing efficiency benefits for surf life saving clubs through reduced fuel usage. The Department is currently consulting with Surf Life Saving Australia towards having a funding scheme in place to coincide with the commencement of the emission standards.

## 5.2 Reduce emissions from wood heaters

Approximately 10 per cent of Australian households use wood heating as their main source of space heating. Current science indicates that there is strong evidence associating particulate matter (PM) exposure through wood smoke with adverse human health outcomes.

There is a history of Commonwealth, state, territory, and local government action to address air pollution from wood heaters. On 15 December 2015, Environment Ministers considered a Decision Regulation Impact Statement which examined options to reduce emissions from wood heaters in Australia.<sup>13</sup> The preferred option agreed by ministers and included in the initial two-year work plan is the adoption of new Australian Standard emission and efficiency standards for new wood heaters and sharing best management practices across jurisdictions. This approach encourages innovation and sharing of cost effective approaches and allows each state and territory to tailor actions for local conditions and priorities. Table 3 shows the progress in adopting the new efficiency and emission standards, and Table 4 shows best practice approaches currently being implemented across Australia. Further activities in relation to information sharing between jurisdictions is provided in Section 6.

In addition, the Commonwealth provided funding during 2016 to support the drafting of new standards for the installation and operation of pellet heaters. Pellet heaters burn pellets of compressed sawdust, the waste product of sawmilling processes, using a hopper to feed pellets into the firebox without the need for human intervention. Pellet heaters convert the available fuel to heat energy much more efficiently than wood heaters because of the higher surface area of the fuel and its inherent low moisture levels. Pellet heaters have very low emissions and are almost smokeless. Finalisation of the standards will follow a public consultation period, in accordance with the requirements of Standards Australia, who is managing this process in consultation with industry, community and government.

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<sup>13</sup> Reducing emissions from wood heaters. Decision Regulation Impact Statement October 2015. Available at: [ris.dpmc.gov.au/2016/03/16/reducing-emissions-from-wood-heaters/](https://ris.dpmc.gov.au/2016/03/16/reducing-emissions-from-wood-heaters/)

**Table 3: Adoption of wood heater emission and efficiency standards**

	<b>Mechanism</b>	<b>Status</b>
NSW	<i>Protection of the Environment Operations (Clean Air) Regulation 2010—amendment</i>	The NSW EPA consulted on the draft <i>Protection of the Environment Operations (Clean Air) Amendment (Heaters and Fireplaces) Regulation 2015</i> to mandate new national emissions and efficiency standards for solid fuel burning heaters from 1 November 2016.
VIC	Solid Fuel Waste Management Policy—amendment	Subject to the Victorian Government response to the EPA Inquiry, incorporation of the efficiency standard for wood heaters (AS/NZS 4012) will occur through amendments to the Solid Fuel Heating Waste Management Policy. This will involve a formal and public impact assessment, and hence is expected to be completed by 2018. Victoria's statutory framework already requires new wood heaters to comply with the emissions standard (AS/NZS 4013:2014).
QLD	<i>Environmental Protection Regulation 2008—amendment</i>	Effective 8 July 2016. The amendment to the relevant provision in the Regulations was made through the <i>Environmental Protection Legislation Amendment Regulation (No.1) 2016</i> made under the <i>Environmental Protection Act 1994</i> .
TAS	<i>Environmental Management and Pollution Control (Distributed Atmospheric Emissions) Regulations 2007—amendment</i>	The new standards are anticipated to be adopted by August 2017 following a review of the Regulations.
WA	<i>Environmental Protection (Domestic Solid Fuel Burning Appliances and Firewood Supply) Regulations 1998 – amendment</i>	In progress.
SA	Environment Protection (Air Quality) Policy 2016 (Air EPP)	Effective 23 July 2016. The Air EPP has provisions for the sale (labelling requirements) and installation of wood heaters in accordance with AS/NZS 4013:2012 and AS/NZS 2918, respectively. The Air EPP also includes provisions for operational 'excessive smoke' emissions and quality of firewood being sold, particularly relating to moisture content.  The Air EPP replaced the interim Environment Protection (Solid Fuel Heater) Policy 2015 which set the same requirements and was in force from 23 July 2015 to 23 July 2016.
ACT	<i>Environment Protection Act 1997 and Environment Protection Regulation 2005</i>	Effective 11 May 2016.

**Table 4: Best practice approaches – wood heater emission reduction**

	Approach	Description	Timing
NSW	Wood smoke reduction programs based on social research findings	<p>NSW EPA undertook a community research program in the Upper Hunter Region to understand residents' attitudes towards wood heaters. The research informed the 2016 winter wood smoke reduction program in Muswellbrook and Singleton and involved an education component and provided incentives to replace old wood heaters with alternative forms of heating and for flue cleaning.</p> <p>The EPA and local councils use a number of instruments to manage wood smoke including regulating the sale and installation of wood heaters in NSW, providing education materials on the proper operation of wood heaters and periodically running education, enforcement and rebate programs.</p>	Winter 2016–17
VIC	Victorian Energy Efficiency Target scheme incentives	Victoria provides incentives for nominated high efficiency gas and electric heaters. Energy Saver Incentives are also available for some home insulation and weatherproofing to support reduced energy use.	Ongoing
QLD	Local engagement	Discussions with local governments and the Australian Home Heating Association.	In progress
TAS	Burn Brighter this Winter project	The annual <i>Burn Brighter this Winter</i> projects commenced in 2012 and are co-ordinated by EPA Tasmania as part of the <i>Domestic Smoke Management Program</i> . These projects aim to improve community health by reducing wood smoke in focus areas. Focus areas have persistent periods of poor air quality as identified from plume searches, fixed-site monitoring using the BLANKET ( <i>Base-Line-Air-Network-for-EPA-Tas</i> ) network (Section 9 refers), and mobile monitoring using the car-based Travel-BLANKET instrumentation. Targeted education and community engagement activities are conducted in these focus areas in collaboration with local government.	Winter 2016
WA	BurnWise program	<p>The Department of Environment Regulation's BurnWise program promotes responsible use of domestic wood heaters to minimise smoke emissions and provides support and tools for environmental health officers in local governments to reduce the impacts of wood smoke. The program's wood heater demonstration trailer features a compliant and a non-compliant wood heater and is used to show correct wood heater operation.</p> <p>Three workshops were held for environmental health officers in Albany and the Perth metropolitan area during May and June 2016. The BurnWise wood heater demonstration trailer also visited local government workshops and Perth and regional community events.</p>	Current
ACT	Education, licensing, and compliance and enforcement activities.	Annual 'Burn Right Tonight' and 'Don't Burn Tonight' public education programs, licensing of Fire Wood Merchants and Wood Heater Replacement Scheme to replace old wood heaters. Compliance and enforcement program for wood heater emissions. Restriction on new installations where strategic environmental assessment determines appropriate (currently new wood heaters restricted in Molonglo Valley (excluding suburb of Wright), and suburbs of Dunlop and East O'Malley).	Current

## 5.3 Management of non-road diesel engine emissions

The agreement's work plan includes two action items in relation to addressing non-road diesel engine (including marine) emissions. These are NSW EPA's Diesel and Marine Emissions Strategy, being implemented in NSW, and evaluation of a national approach.

### 5.3.1 NSW EPA's Diesel and Marine Emissions Strategy

The NSW EPA released its Diesel and Marine Emissions Management Strategy in 2015 with the aim of reducing emissions from priority sectors which, to date, have been a significant but unregulated source of PM<sub>2.5</sub>, oxides of nitrogen and SO<sub>2</sub>.<sup>14</sup> The Strategy was supported and informed by the EPA's Clean Machine Program involving industry and local councils which ran from 2011 to 2015. This Program encouraged voluntary emissions reductions through procurement, worksite practice and retrofits with government subsidised emission reduction devices, and developed the EPA's capacity to identify the emission standard of current diesel equipment. Key elements of the Strategy are listed in Table 5.

**Table 5: Key elements of the Diesel and Marine Emissions Strategy**

Element	Description
Government Resource Efficiency Policy <sup>15</sup>	Since 1 January 2015, NSW Government agencies have been required to purchase cleaner diesel machines and, through contract conditions, promote and phase-in cleaner machines by contractors engaged on government projects.
Construction	The EPA has been working with government agencies and industry engaged in EPA-licensed activities, to identify the most practicable measures to reduce emissions from construction plant and equipment, including encouraging procurement of cleaner machines, promoting hire of cleaner equipment, retrofitting older heavily polluting equipment and maintenance and repair programs to maintain clean operation (Section 6 refers).
Coal mining	Drawing on a survey of coal mines, review of best practice measures to reduce diesel emissions from coal mining equipment and a Benchmarking Study released in 2015, the EPA is currently scoping Pollution Reduction Programs for inclusion in environmental protection licences that will require coal mines to pursue best practice measures to reduce diesel emissions from machinery. <sup>16</sup>
Locomotives	The EPA consulted on the draft <i>Protection of the Environment Operations Legislation Amendment (Scheduled Activities) Regulation 2016 (Amendment Regulation)</i> in May—June 2016 to require rolling stock operators to hold an environmental protection licence, thereby holding diesel locomotive operators accountable for improved emissions performance. <sup>17</sup> Development of this regulation will allow locomotive emissions standards and/or other measures to be included in licences held by rolling stock operators. The EPA has also been investigating the feasibility of emissions control technology for older locomotives (Tier 0+ emissions upgrade kits). Stakeholder consultation is ongoing to determine the potential emissions standards and other measures to be considered for environmental licences.

<sup>14</sup> Diesel and marine emissions management strategy. January 2015. Available at: [www.epa.nsw.gov.au/air/150038DieselStrategy.htm](http://www.epa.nsw.gov.au/air/150038DieselStrategy.htm)

<sup>15</sup> Available at: [www.environment.nsw.gov.au/government/policy.htm](http://www.environment.nsw.gov.au/government/policy.htm)

<sup>16</sup> Benchmarking Study available at: [www.epa.nsw.gov.au/resources/air/150242-coal-mine-study.pdf](http://www.epa.nsw.gov.au/resources/air/150242-coal-mine-study.pdf)

<sup>17</sup> Draft Regulation available at: [www.epa.nsw.gov.au/licensing/scheduled-activities-amend-exhibition.htm](http://www.epa.nsw.gov.au/licensing/scheduled-activities-amend-exhibition.htm)

Element	Description
Shipping	<p>In 2015 the NSW Government introduced a regulation to limit the sulfur content of fuel used by cruise ships in Sydney Harbour and consulted with regional communities about the possible extension of this regulation to other NSW ports.</p> <p>In January 2016 the Commonwealth government introduced amendments to the <i>Protection of the Sea (Prevention of Pollution from Ships) Act 1983</i> which implements Australia's international obligations for shipping. These amendments effectively overrode the <i>Protection of the Environment Operations (Clean Air) Regulation 2015</i> and have rendered the NSW low sulfur requirements inoperative. The NSW and Commonwealth governments are working together on options to address shipping emissions in Sydney Harbour. In the interim, cruise lines whose ships visit Sydney Harbour have agreed to comply voluntarily with NSW's low sulfur fuel requirements while at berth. The major cruise line company operating in NSW has also agreed to an inspection program with the EPA to confirm the use of low sulfur fuel while berthed in Sydney Harbour.</p> <p>The NSW EPA is also reviewing emissions from other shipping types and in October 2015 released an expert technical report, <i>Emissions from Ships Operating in the Greater Metropolitan Area</i>, on the feasibility, costs and emission impacts of adopting emission reduction measures for ships at major ports in the NSW Greater Metropolitan Area.<sup>18</sup></p>

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

Non-road diesel engines are used in a wide range of sectors and applications, including construction and mining, industry, power generation, agriculture, marine applications, forestry and logging, and lawn and garden applications. They emit particulate matter (mainly fine particles, PM<sub>2.5</sub>), 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 Australia with the exception of engines applied in underground mining. Regulations for non-road diesel equipment 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.

Some preliminary national analysis published by the NSW EPA showed that non-road diesel engine emissions are projected to increase significantly over the next two decades, due to information at the time indicating a forecast increase in fuel consumption by this sector and cost impediments to the uptake of significantly cleaner engines.<sup>19</sup>

Recognising this, the agreement's initial two-year work plan includes an evaluation of the potential for national approach to manage non-road diesel and marine engine emissions through the agreement's priority setting process. The establishment of the priority setting process is another action item under the initial two-year work plan, and has now been completed (Section 8). It is anticipated that managing non-road diesel engines emissions nationally will be one of the first actions to be evaluated under the priority setting process for potential future inclusion on the agreement's work plan.

<sup>18</sup> Emissions from Ships Operating in the Greater Metropolitan Area 2015. Available at: [www.epa.nsw.gov.au/resources/air/gma-ship-emissions.pdf](http://www.epa.nsw.gov.au/resources/air/gma-ship-emissions.pdf)

<sup>19</sup> Reducing emissions from non-road diesel engines. August 2014. Available at: [www.epa.nsw.gov.au/resources/air/140586NonrdDiesInfoRpt.pdf](http://www.epa.nsw.gov.au/resources/air/140586NonrdDiesInfoRpt.pdf)



## 6 Partnerships and cooperation

Partnership and cooperation activities will complement government action to address air quality issues by fostering partnership opportunities aimed at promoting and sustaining improved air quality outcomes. The agreement's initial two-year work plan establishes an ongoing approach to engage with the non-government sector to seek out non-regulatory measures to managing air quality and to examine ways to better integrate air quality management in new infrastructure and upgrades. A one-year Clean Air Champions initiative was also established to help raise awareness and engage industry and the community on clean air issues.

### 6.1 Explore partnerships with non-government stakeholders

A range of activities are underway in various jurisdictions to explore opportunities with the non-government sector to positively influence good air quality outcomes, including through:

- identifying non-regulatory approaches to manage air quality
- examining ways to better integrate air quality management in new infrastructure developments and upgrades
- Clean Air Champions initiative.

These activities may be sought to help address a given air quality issue/s within a jurisdiction, but collectively will contribute to improved air quality for Australia. Some specific activities are highlighted below, by contributing jurisdiction.

#### 6.1.1 New South Wales—Industry Partnership

Since 2015, the NSW EPA has partnered with the Infrastructure Sustainability Council of Australia (ISCA), a member based, not-for-profit, industry council representing the infrastructure and construction sector, to improve awareness and implementation of state strategies to reduce emissions from non-road diesel equipment used in the construction sector.

This project engaged more than 250 stakeholders from industry, industry associations, non-road diesel equipment suppliers and hire firms, environmental consultants, local and State government and health experts. Engagement tools included an Industry Engagement Survey, a workshop and data collection.

Motivations for engaging in diesel emission reduction programs were explored, including work health and safety, environmental policy, tender requirements and the need to update equipment, as well as challenges and barriers to reducing diesel emissions in the industry.

Three case studies showcasing industry best practice, one of which was presented at an ISCA conference in October 2015, were developed and are published on the EPA and ISCA websites.<sup>20</sup> Other case studies with industry stakeholders are proposed to be developed.

<sup>20</sup> Case studies available at: Reducing diesel emissions from construction: Best practice case studies: [www.epa.nsw.gov.au/air/nonroaddiesel-case-studies.htm](http://www.epa.nsw.gov.au/air/nonroaddiesel-case-studies.htm)

## 6.1.2 Victoria—Citizen Science

Following the Hazelwood Mine Fire that occurred in February 2014, EPA Victoria has worked with the Latrobe Valley community to improve access to air quality information, science communication and to develop a Citizen Science Program. EPA Victoria is currently working with the community to co-design a process for a new air monitoring network and exploring new participation opportunities as part of the Citizen Science Program. The program timeline runs from February 2014 to October 2018.

## 6.1.3 Queensland—Industry collaboration

The Queensland Government is currently in discussion with coal transporters to further reduce coal dust emissions and share monitoring data as evidence of industry action (e.g. implementation of the Coal Dust Management Plans).

## 6.1.4 Tasmania—Collaborative wood smoke reduction projects

EPA Tasmania is active in promoting improved planned burning practices to reduce smoke impacts on the community. Since 2008 EPA Tasmania has worked with the Forest Practices Authority, Department of Health and Human Services, Tasmanian Fire Service, the Parks and Wildlife Service and the forestry industry to develop the *Coordinated Smoke Management Strategy* (CSMS). The CSMS is a voluntary, non-statutory scheme for the management of planned burning, with a mechanism for determining days on which burning is appropriate and quotas for the volume of burning on each day.

The outcomes of the CSMS are reviewed each year to improve its future operation. Air quality data from Tasmania's state-wide real-time BLANKET (*Base-Line-Air-Network-for-EPA-Tas*) network (Section 9) is used to facilitate the development of good burning practices including the determination of 'noburning' days. Studies undertaken by EPA Tasmania, on planned burn smoke concentrations and movements, are used to inform the public, to assist burners in smoke management and to improve the operation of the CSMS. Reports written for these purposes are available on EPA Tasmania's website.<sup>21</sup> This continuous improvement capability of the CSMS is an important 'best practice' aspect of the strategy.

The 'AirRater' project, launched in October 2015, is a Sense-T collaborative project involving the Menzies Research Institute, University of Tasmania School of Biological Sciences, CSIRO, Australian National University, the EPA Tasmania and the Tasmanian Department of Health and Human Services. The project team consists of leading researchers in the fields of environmental health, with specialities in air pollution, pollen, smoke and heat. It includes a smart-phone application that allows users to report air-related health symptoms and, in the longer term, to receive personalised alerts. Tasmania's BLANKET particle monitoring network is being used to provide state-wide real-time air quality information.

## 6.1.5 Western Australia—Multisectoral committee

The Air Quality Coordinating Committee (AQCC) oversees and the implementation of the Perth Air Quality Management Plan. The plan outlines strategies and actions to maintain and improve Perth's air quality to 2030 and beyond. The AQCC is comprised of representatives from government, industry, business and the community and is chaired by the Department of Environment Regulation.

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<sup>21</sup> Reports available at: [epa.tas.gov.au/epa/blanket-reports](http://epa.tas.gov.au/epa/blanket-reports)

The plan provides a framework for the management of air quality through eight key initiatives: Land Use and Transport Planning, Vehicle Emissions Management, Health Effects Research and Indoor Air Quality, Monitoring and Modelling, Industrial Emissions Management, Small to Medium Enterprise Emissions Management, Haze Reduction, and Smoke Management. The BurnWise (Section 5, Table 4) and CleanRun (Section 9) programs are initiatives of the plan.

### 6.1.6 Northern Territory

As a result of the recent election, non-government organisations in the Northern Territory are to be re-funded. This may result in environment grants, and possible options to influence air quality outcomes, over the next 18 months.

### 6.1.7 Australian Capital Territory—Industry liaison

Ongoing since 2004, the ACT has an annual program of industry liaison with wood heater retailers to inform them of legislated standards for wood heater sales in the ACT and legislated requirements that fire wood must be sourced from licensed fire wood merchants. This is supported by the ACT's education programs for wood heater emissions which include the 'Burn Right Tonight' and 'Don't Burn Tonight' campaigns (Section 5, Table 4).

The wood heater rebate scheme to replace old wood heaters has been in place since 2004 and has seen over 1100 wood heaters removed from service and replaced with cleaner energy alternatives. The scheme is funded by the ACT's main utility provider ActewAGL and administered by the ACT Government.

### 6.1.8 Commonwealth—Clean Air Champions initiative

The former Commonwealth Government Minister for the Environment, Greg Hunt MP, launched a one-year Clean Air Champions initiative in June 2015 to support work towards establishing the National Clean Air Agreement by raising awareness with industry and community on key government policy priorities that relate to clean air.

The Clean Air Champions selected were: Mr Gary Fooks, Chair of Blue Sky Allianace; Hyundai Australia; Professor Peter Rayner, Clean Air and Urban Landscape Hub leader (Section 7 refers); Helen and John Taylor (fuel economy advocates); and the Clean Air Society of Australia and New Zealand.<sup>22</sup> They represent diverse areas, including industry, academia and the community, each with approaches towards improving air quality outcomes. The Champions helped to raise community awareness and knowledge of air quality and initiatives being undertaken to support a clean air future.

The initiative concluded in June 2016.

<sup>22</sup> Further information about the Clean Air Champions is available at:  
[www.environment.gov.au/protection/air-quality/clean-air-champions/champions](http://www.environment.gov.au/protection/air-quality/clean-air-champions/champions)

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

Jurisdictions, including the Commonwealth, actively participate in various fora to regularly discuss and exchange information on air quality management and monitoring. Such fora include the Meeting of Environment Ministers, Senior Officials Group, Air Project Management Group and Heads of Environment Protection Authorities meetings.

Aside from these formal opportunities, other activities undertaken by jurisdictions serve to facilitate information exchange. Two examples are provided below.

### 6.2.1 Collaborative research—air quality measurement

Agencies responsible for air quality monitoring in New South Wales, Queensland, Victoria and South Australia will collaborate with a consortium of leading researchers in an Australian Research Council (ARC) Linkage funded project entitled '*Developing and utilising advanced networks for air quality sensing and analyses*'.

The Queensland University of Technology-led collaboration involves researchers from RMIT University, Curtin University and the Bureau of Meteorology, and research staff from the participating jurisdictions.

The project aims to advance evidence-based air quality management by developing, validating and implementing novel methods for high resolution atmospheric sensing, and applying cutting edge statistical and data analytic techniques to the data sets.

The study will include:

- the design and optimisation of sensors
- development of approaches for optimal sensor deployment and harvesting of information
- establishment of a scalable, open access cloud-based database management centre
- establishment of sensing networks in state capitals of partner investigators, and
- use of sensor networks for pilot applications.

### 6.2.2 Biomass Smoke in the Human Environment (BISMITHE) Workshop

In July 2016 EPA Tasmania in association with the Clean Air Society of Australia and New Zealand (CASANZ) held a two and a half day '*Biomass smoke in the human environment*' workshop to highlight the real-world consequences of living in an environment with exposure to smoke particle pollution. The workshop covered smoke from domestic heating and planned burns (both large-scale and small-scale). The issues included the scientific aspects of measurement, modelling, and data-analysis, the policy, regulatory, compliance responses and frameworks, community engagement and education as well as health studies and implications.

Around 60 people registered as participants in the workshop. Participants included a mix of environment agency policy and/or scientific staff from all states and territories of Australia (with the exception of the Northern Territory), along with local council Environmental Health Officers, and representatives from universities, CSIRO and from New Zealand environment agencies.

## 7 Better knowledge, education and awareness

Better knowledge, education and awareness are essential requirements to inform policy decisions and to help empower communities and individuals to better deal with air pollution. Knowledge, improved through information sharing and research, is critical to plug existing data gaps, identify future trends and help focus efforts in managing air quality, and explore innovative measures to address air pollution.

The agreement's initial two-year work plan includes complementary actions such as a proposed National Air Quality Data Service, research under the Australian Government's National Environment Science Programme, and a two-year plan for reforms to improve the National Pollutant Inventory.

These actions, described below, aim to improve access to reliable air quality information for researchers, policy makers and the community.

### 7.1 Proposed National Air Quality Data Service

The Bureau of Meteorology has been scoping options to develop an operational National Air Quality Data Service (NAQDS) to address a suite of current and emerging national environmental reporting and policy needs. Design, consultation and user-requirements gathering is now complete, with the latter leading to the 2016 release of the NAQDS Business Requirements Study.<sup>23</sup> The Bureau has also been working with stakeholders to consider resourcing options.

The recent release of the National Environmental Monitoring Sites Register by the Bureau may provide an initial solution to better understanding and information sharing about Australia's air quality monitoring.<sup>24</sup> The Bureau is considering options for using this product to address some NAQDS user requirements.

### 7.2 The NESP CAUL Hub

The Clean Air and Urban Landscapes (CAUL) Hub, funded under the Australian Government's National Environment Science Programme (NESP), is undertaking research to enhance our understanding of, and to improve, air quality.<sup>25</sup> The Hub comprises five key projects, including the *Western Air-Shed and Particulate Study for Sydney*, which will develop tools and evidence to deliver a Clean Air Plan for Western Sydney. The Hub is collaborating with researchers at the NSW Office of Environment and Heritage (OEH) and CSIRO to deliver this study.

As part of this project, the Hub is implementing its program of targeted measurement campaigns. Recent research activities include deployment of open path instruments to measure trace gas concentrations, and personal measurement devices to track air quality along commuter routes. The Hub is also working to contribute towards the future integration of satellite data products into their air quality monitoring and modelling to improve future chemical weather forecasting.

In Melbourne, the Hub is trialling collection of data from wearable personal air quality monitors, connected via Bluetooth to mobile devices, to dramatically improve the understanding of localised (disaggregated) pollution across cities. This crowdsourcing, or citizen science, approach to collecting data is intended to augment the information captured by permanent monitoring stations logging PM<sub>2.5</sub>.

The Hub has developed strong links with stakeholders, ranging from all levels of government, industry, private business, and with local community and Indigenous groups.

<sup>23</sup> Study available at: [www.bom.gov.au/environment/publications.shtml](http://www.bom.gov.au/environment/publications.shtml)

<sup>24</sup> Register available at: [neii.gov.au/nemsr](http://neii.gov.au/nemsr)

<sup>25</sup> More information about the Hub is available via: [www.nespurban.edu.au/](http://www.nespurban.edu.au/)

## 7.3 National Pollutant Inventory reforms

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 Commonwealth Department of the Environment and Energy has been leading NPI reforms to improve efficiencies for government, streamline processes and reduce burden on business by improving data availability and usefulness.

The Department has made good progress on the NPI reforms, completing work to modernise the technologies supporting the NPI Online Reporting System; design more efficient and reliable methods for validating NPI data; and fix issues with emission calculation tools and online mapping.

In the coming months, the Department expects to start 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.

Later in 2016–17, the Department will improve internal data management tools and fix problems with publishing aggregated emissions data.

In the second half of 2016, the Department initiated planning for a review of the NPI to identify further opportunities for reform. On 25 November 2016, Environment Ministers agreed to terms of reference for a review of the NPI to be completed in 2017. These include identifying whether the right substances were being reported, the most valuable information was being collected and whether its collection was cost-effective.

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

## 8 Priority setting process

The agreement's priority setting process was developed by the Air Project Management Group and endorsed by the Senior Officials Group in October 2016.<sup>26</sup> The process builds on the overarching framework in the agreement and sets guidance criteria to assist governments to determine whether an air quality issue should be prioritised for future action under the agreement and included on the agreement's work plan. It also identifies government roles and responsibilities in delivering the actions agreed by Environment Ministers.

Future priority setting activities under the agreement will 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.

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<sup>26</sup> National Clean Air Agreement priority setting process available at:  
[www.environment.gov.au/protection/air-quality/national-clean-air-agreement](http://www.environment.gov.au/protection/air-quality/national-clean-air-agreement)



Acknowledging the commitments on the agreement's initial two-year work plan, the priority setting process will be implemented by the Air Project Management Group, with future priorities for action under the agreement anticipated to be recommended to Environment Ministers in late 2017. Any new items agreed by ministers could then be included in the next two-year work plan, commencing January 2018, subject to the formal review of the agreement and its work plan scheduled for December 2017.

In determining future priorities and lead roles and responsibilities to deliver agreed actions, Environment Ministers are supported by the Senior Officials Group and the Air Project Management Group, both represented by officials from government environment agencies. Progress on action items is considered by Environment Ministers at their meetings.<sup>27</sup>

## 9 Additional air quality actions

While the agreement lists priority actions for air quality agreed by Environment Ministers, it remains flexible so additional air quality management strategies can be tailored and implemented by jurisdictions according to their needs. The following sections highlight some additional air activities currently underway in jurisdictions, by contributing jurisdiction.

### 9.1 New South Wales—Clean Air Plan

NSW has released the *Clean Air for NSW consultation paper* for public comment over the period November 2016 to mid-January 2017. Developed by the NSW EPA, it is the first step in developing a 10-year strategic clean air plan for NSW.<sup>28</sup> It is also proposed to hold a clean air summit in 2017 as part of the consultation process. Priority actions under the proposed plan will aim to achieve long term reductions in the impacts of fine particles and other key pollutants on large populations. OEH is developing a metric to report against the goal of improving average air quality results across NSW.

The EPA developed a short animation to provide information on air quality in the Sydney Basin at a basic level to empower local communities to engage in informed discussion on air quality.<sup>29</sup> It covers the key sources of particle and ozone pollution, and how geography and weather influence the concentration and dispersion of air pollution.

### 9.2 New South Wales—Enhanced air quality monitoring and forecasting

The OEH is progressively expanding the scope and enhancing the accuracy of air quality forecasting capabilities in NSW through collaboration with science partners and the development of advanced tools and analysis. The delivery of accurate, locality-specific short-term forecasts for major population centres on an on-going basis will provide information that can help people susceptible to poor air quality take preventative actions to minimise personal health impacts.

The OEH continues to review and improve the NSW Air Quality Monitoring Network and to investigate new measurement techniques. This has recently included the expansion of the PM<sub>2.5</sub> monitoring network and the commissioning of additional multi-wave length aethalometers to measure black carbon concentrations.

<sup>27</sup> Agreed statements from Meetings of Environment Ministers are available at: [www.environment.gov.au/about-us/mem](http://www.environment.gov.au/about-us/mem)

<sup>28</sup> Clean Air for NSW consultation paper available at: [www.epa.nsw.gov.au/air/clean-air-nsw.htm](http://www.epa.nsw.gov.au/air/clean-air-nsw.htm)

<sup>29</sup> Short animation available at: [www.epa.nsw.gov.au/air/](http://www.epa.nsw.gov.au/air/)

Air pollution incident monitoring and modelling capabilities have been established by the OEH and are in the process of being tested. The aim is to provide the best available information on air pollution and potential health impacts from major incidents, to inform emergency responses and reduce health impacts in communities affected by major incidents.

### 9.3 Victoria—Incident air quality monitoring

The Hazelwood Mine Fire in Victoria's Latrobe Valley burnt for 45 days in February and March 2014 and impacted significantly on the town of Morwell and the wider Latrobe Valley.

In response to the fire, the Victorian Government is improving the process for making equipment and resources available to monitor air quality in a smoke event. Victoria now has a State Smoke Framework that includes a range of standards and procedures that help inform timely decision-making to support the Victorian community during an event.<sup>30</sup>

Over summer 2015–16, equipment for incident air quality monitoring was deployed to emergency events as requested by fire agencies, and monitoring data and information was provided to the Victorian Department of Health and Human Services (DHHS) to assist public health decisions. This included for large fires at Somerton in November 2015 (construction and demolition waste) and Broadmeadows in January 2016 (tyres).

### 9.4 Victoria—EPA AirWatch

EPA has developed EPA AirWatch in the last 12 months to respond to the community need for regular and accurate air quality information. EPA's AirWatch site shows air quality from the air monitoring stations around Victoria.<sup>31</sup> Data at each air monitoring location is updated hourly for the pollutants measured. PM<sub>2.5</sub> particles are the main pollutant of concern in smoke, and DHHS have developed a set of health categories for PM<sub>2.5</sub> (low, moderate, unhealthy for sensitive groups and so on) that is used in EPA AirWatch.

### 9.5 Victoria—Testing particle monitors in high smoke conditions

EPA Victoria collaborated with Victoria University's Centre of Environmental Safety and Risk Engineering to test a range of particle monitors using a smoke chamber. This work was precipitated by the Hazelwood Mine Fire and by recognition of the need for accurate incident air monitoring data to inform public health decisions associated with smoke in the environment.

Smoke chamber testing demonstrated how particle monitors perform, particularly in the high smoke conditions of emergency response and bushfire situations. Results from the testing will be used to inform decisions on suitable monitoring equipment for use in emergency response scenarios and to provide useful information for other jurisdictions.

30 State Smoke Framework available at: [www.emv.vic.gov.au/latest-news/a-new-approach-to-smoke-events/](http://www.emv.vic.gov.au/latest-news/a-new-approach-to-smoke-events/)

31 AirWatch site available at: [www.epa.vic.gov.au/our-work/monitoring-the-environment/epa-airwatch](http://www.epa.vic.gov.au/our-work/monitoring-the-environment/epa-airwatch)

## 9.6 Tasmania—BLANKET particle monitoring network

In 2009 Tasmania established the state-wide real-time BLANKET (Base-Line-Air-Network-for-EPA-Tas) particle monitoring network which now consists of 34 stations spread around the state. Each station is equipped with a low-cost indicative air quality monitoring instrument, a meteorological station and a communications link. The stations are calibrated against reference level instruments and report air quality and meteorological data automatically every 10 to 15 minutes which is then published almost immediately on EPA Tasmania's website. The network operates year-round providing reliable real-time air quality information to the public across the state. The real-time air quality data from the network is used in the Forest Practices Authority's *Coordinated Smoke Management Strategy* to assist with the management of smoke from planned burns. It also provides measurements of smoke from domestic heating and from bushfires.

In recent years EPA Tasmania has constructed a car-based version of a BLANKET station, referred to as Travel-BLANKET, which has become a versatile smoke surveying tool for the EPA. This mobile instrument is playing an important role in monitoring ambient levels of smoke in Tasmanian communities in real-time. Every five seconds one geo-located PM<sub>2.5</sub> data point is logged and the colour-coded data are displayed via Google Earth in real-time. The instrument plays an important role in the *Burn Brighter this Winter* annual projects (Section 5, Table 4).

## 9.7 Western Australia—CleanRun program

The Department of Environment Regulation's CleanRun program aims to improve air quality in Western Australia by reducing vehicle emissions. It consists of targeted initiatives to reduce vehicle emissions including on-road vehicle emissions testing and smoky vehicle reporting.

A remote sensing device (RSD) is used to: determine average fleet emissions and vehicle fleet trends over time; detect high emitting vehicles; and raise awareness of vehicle emissions among drivers. Roadside monitoring with the RSD was undertaken over twelve days in March and April 2016, collecting samples from over 20,000 vehicles. Data will be analysed with findings scheduled to be reported by late 2016.

## 9.8 South Australia – Review of Air Science Programs

The South Australian EPA has initiated a comprehensive review of its air science programs, with a view to improving its capabilities towards improved understanding of sources and population exposure patterns, regulation of emissions from activities and improved responses to planned burning, bushfires and other emergencies. The review is investigating ways in which the EPA can build on its current capabilities for monitoring, modelling and other scientific tools, in light of rapid advances in low-cost sensors and information management systems, enhanced modelling techniques and improved knowledge of health impacts of air pollution.

A first phase of the review report is expected to be completed by mid-2017, after which implementation of key recommendations is expected to commence in the new financial year.

## 9.9 Australian Capital Territory—Renewable Energy Target and Energy Efficiency Improvement Scheme

The ACT Government is contributing towards improving air quality through implementing the Renewable Energy Target (RET) and the Energy Efficiency Improvement Scheme (EEIS).

In April 2016 the ACT Government announced an amendment to the RET that will see 100 per cent of the Territory's electricity needs met by renewable energy by 2020. This increased the previous RET of 90 per cent by 2020 that was established in 2013.

The ACT has facilitated the establishment of 640 MW of renewable energy capacity (both solar and wind facilities) through the large-scale renewable energy reverse auction process. Modelling shows that the total 641 MW of large-scale feed-in tariff supported renewable energy capacity will be sufficient to meet the 100 per cent-by-2020 RET.

The EEIS commenced on 1 January 2013, requiring retailers to implement energy efficiency improvements to ACT homes with a focus on low-income households. Over 65 000 households have participated in the EEIS since this time, including over 17 000 low income priority households. By March 2016, electricity retailers had successfully installed over one million energy saving items. The extension of the scheme to 2020 will promote innovation and competition by enhancing business opportunities, introducing new activities and harmonising with other jurisdictions.

These actions will see the ACT leading by being the first jurisdiction to reach targets of 100 per cent renewable electricity and 40 per cent reduction on greenhouse gas emissions by 2020.

## 9.10 Australian Capital Territory—Clean Air and Urban Landscapes

The ACT Planning strategy states that Canberra will maintain its reputation as a 'capital in the bush' and as a city known for clean air, open space and convenience.

Canberra's system of streets, parks and waterways provide important habitat that improves the connectivity of ecosystems. The design of these public spaces support and extend our natural systems to improve the quality of Canberra's environment and foster resilience to climate change. This recognises the role 'green infrastructure' can play in providing us with clean air and water.

Canberra will be at the centre of a region offering stimulating, highly skilled jobs in a clean, green economy. Canberra's open spaces will be leafy places for people to enjoy and to socialise in with friends and neighbours. With infill development, community gardens and play spaces will increase opportunities for people to connect and feel a sense of belonging. These spaces will form a network of meeting places connected by walking and cycling links.

To lower Canberra's carbon emissions, the community will invest in sustainable transport and buildings. There will be a shift from its current dependency on the motor vehicle to more sustainable options. Electric cars, walking and cycling and the light rail/sustainable public transport system will make Canberra less dependent on motor vehicles. Incentives and planning codes that reduce energy and water use in new and old houses will conserve resources. Older houses will have been retrofitted to improve their environmental performance.

These initiatives support the Agreement's complementary measures to support environmental quality in urban areas.

## 9.11 Commonwealth—Ministerial forum on vehicle emissions

On 31 October 2015, the Australian Government established a Ministerial Forum on Vehicle Emissions to coordinate a whole of government approach to on-road vehicles emissions. A Discussion Paper examining ways to reduce the health and environmental impacts from motor vehicle emissions was released in February 2016 for public comment. The Forum also met with key stakeholders including vehicle manufacturers, transport operators, consumer groups, fuel companies and health and environment groups to canvass possible ways government could help reduce the impact of vehicle emissions.<sup>32</sup>

The Forum will, among other things, look at the option of moving to the more stringent on-road heavy vehicle emissions standard, Euro VI, which defines the threshold for on-road heavy vehicle emissions of carbon dioxide, oxides of nitrogen, hydrocarbons and particulates.

## 10 Summary

During its first twelve months, the agreement has functioned as intended. Significant progress on a range of actions covering the agreement's strategic approaches has occurred, including strengthened reporting standards for particles, work towards implementing national emission standards for non-road spark ignition engines and equipment, wood heater emission reduction approaches and ongoing activities in partnership opportunities with the non-government sector and improving knowledge, education and awareness.

During 2016, the agreement's priority setting process was established, which will assist governments to prioritise future air quality actions to be included on the agreement's work plan, and consistent with the desired outcomes and key principles of the agreement.

A full review scheduled for December 2017 will further examine progress against the initial two-year work plan, as well as the continued appropriateness and relevance of the agreement's objectives, principles and strategic approaches.

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<sup>32</sup> More information about the Forum is available at: [infrastructure.gov.au/roads/environment/forum/index.aspx](http://infrastructure.gov.au/roads/environment/forum/index.aspx)

**environment.gov.au**

