

# EMISSIONS STANDARDS

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## AUSTRALIA

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# AUSTRALIA

The [National Environment Protection Council](#) is a statutory body with law making powers and consists of ministers from the Commonwealth, State and Territory governments. It has established National Environment Protection Measures (NEPMs) to help protect or manage particular aspects of the environment. Implementation of the NEPMs falls to State and Territory Governments. These can adopt broader or more stringent standards than those provided for by the NEPMs but may not adopt lower standards.

The two NEPMs relevant to air pollutants are the National Environment Protection (Ambient Air Quality) Measure and the National Environment Protection (National Pollutant Inventory) Measure.

The current [National Environment Protection \(National Pollutant Inventory\) Measure](#), published in 2008, lists 93 reportable substances. Industrial facilities that use or produce any of these substances (according to specified thresholds) are required to estimate and report emissions every year. These include emissions of nitrogen oxides, sulphur dioxide, PM<sub>10</sub> and PM<sub>2.5</sub> from power plants. A publicly available database of the [Inventory](#) is available. The National Pollutant Inventory is being reviewed as part of the [National Clean Air Agreement Work Plan for 2018–2020](#). The [National Clean Air Agreement](#) was established by Australia's Commonwealth, State and Territory environment ministers on 15 December 2015 to map out a path for a clean air future in Australia. It sets a framework to help the various governments identify and prioritise actions required to address air quality issues that would benefit from national collaboration. Agreed actions are listed on the agreement's work plan, which is reviewed every two years.

Greenhouse gas emissions are covered in the [National Greenhouse and Energy Reporting Act 2007](#). Company information on greenhouse gas emissions, energy production, energy consumption and other required information is reported under the [National Greenhouse and Energy Reporting scheme](#), which was established under the Act. It includes greenhouse gases from coal-fired power plants.

The [Emissions Reduction Fund](#) provides financial incentives to organisations to reduce their greenhouse gas emissions. Participants in the voluntary scheme can earn carbon credit units for every tonne of CO<sub>2</sub> equivalent (CO<sub>2</sub>-e) they store or avoid emitting. The credits can be sold. The Fund includes a safeguard mechanism to ensure emissions reductions aren't displaced by a rise in emissions elsewhere in the economy. The [Emissions Reduction Fund Safeguard Mechanism](#), which started on 1 July 2016, sets limits on the greenhouse gas emissions from around 140 large polluting businesses that have facilities emitting more than 100,000 t CO<sub>2</sub>-e/y. Amendments to the [National Greenhouse and Energy Reporting \(Safeguard Mechanism\) Rule 2015](#) came into force on 7 March 2019. A sectoral approach was adopted for the power generating industry. A sectoral baseline of 198 million tonnes (Mt) CO<sub>2</sub>-e for each financial year applies collectively to generators connected to designated electricity networks. However, individual baselines will apply to each generator once this baseline is exceeded. Any electricity generation facility that exceeds the safeguard threshold and is not connected to one of the relevant electricity grids will be treated the same as any other safeguard facility.

## NATIONAL ENVIRONMENT PROTECTION (AMBIENT AIR QUALITY) MEASURE

The *National Environment Protection (Ambient Air Quality) Measure* (Ambient Air Quality NEPM), established in 1998, provides a nationally consistent framework for monitoring and reporting six criteria air pollutants, namely carbon monoxide, nitrogen dioxide, ozone, sulphur dioxide, lead and particulate matter (PM<sub>10</sub>). It has been amended to include PM<sub>2.5</sub>. The [latest version](#) takes into account amendments up to 2015. The standards for PM<sub>10</sub>, sulphur dioxide, nitrogen dioxide and ozone are being reviewed as part of the [National Clean Air Agreement Work Plan for 2018–2020](#).

Although the Ambient Air Quality NEPM is not intended to regulate emissions from individual industrial facilities, organisations licensing emissions from a power plant would normally consider the effect of any emissions on ambient concentrations near population centres.

### Current standards and goals for the Ambient Air Quality NEPM

Pollutant	Averaging period	Maximum concentration	Maximum allowable exceedances
Carbon monoxide	8 hours	9 ppm	1 day a year
Nitrogen dioxide	1 hour	0.12 ppm	1 day a year
	1 year	0.03 ppm	None
Photochemical oxidants (as ozone)	1 hour	0.10 ppm	1 day a year
	4 hours	0.08 ppm	1 day a year
Sulphur dioxide	1 hour	0.20 ppm	1 day a year
	1 day	0.08 ppm	1 day a year
	1 year	0.02 ppm	None
Lead	1 year	0.50 µg/m <sup>3</sup>	None
Particles as PM <sub>10</sub>	1 day	50 µg/m <sup>3</sup>	None
	1 year	25 µg/m <sup>3</sup>	None
Particles as PM <sub>2.5</sub>	1 day	25 µg/m <sup>3</sup>	None
	1 year	8 µg/m <sup>3</sup>	None
Particles as PM <sub>2.5</sub>	1 day	20 µg/m <sup>3</sup> by 2025	None
	1 year	7 µg/m <sup>3</sup> by 2025	None

ppm is parts per million

Reference conditions for the µg/m<sup>3</sup> limits are at a temperature of 0°C and an absolute pressure of 101.325 kPa.

Implementation of the Ambient Air Quality NEPM is typically the responsibility of the State and Territory Environment Protection Authorities.

Australia does not have national air emission standards. The following sections cover the states and territories that provide emission standards for coal-fired power plants and industrial boilers or, where these are not specified, the state-wide air quality standards.

## AUSTRALIAN CAPITAL TERRITORY (ACT)

The [Environment Protection Act 1997](#) (republished 31 August 2017) provides the regulatory framework for environmental protection in the ACT. It established the Environment Protection Authority as the statutory body for environmental regulation and policy. According to the [Environment Protection Regulation 2005](#) (republished 21 December 2018) emission standards for air pollutants from industrial processes are covered by the *National Guidelines for Control of Emission of Air Pollutants from New*

*Stationary Sources 1985*, as in force immediately before it was rescinded by the National Health and Medical Research Council on 29 February 2000. The Environment Protection Act 1997 and Environment Protection Regulation 2005 were amended in the [Environment Protection Amendment Bill 2014](#) after a review in 2012. The [Air – Environment Protection Policy](#) (3 November 1999) is not legally binding but helps to explain the legal requirements of the Environment Protection Act 1997 and the Environment Protection Regulation 2005. It is being reviewed.

The ACT is currently formalising its policy on air emissions within its territory. Until the relevant documents are finalised, the [South Australia Environment Protection \(Air Quality\) Policy 2016](#) has been adopted (see the *South Australia* section).

### NEW SOUTH WALES (NSW)

The [Protection of the Environment Operations Act 1997](#) (the POEO Act, current version 5 July 2019), provides the legal basis for environmental protection regulation in NSW, whilst the [Protection of the Environment Operations \(Clean Air\) Regulation 2010](#) (the POEO Regulation, current version 8 January 2019) sets emission standards for air pollutants from power plants and industrial processes. The POEO Act established a system of environment protection licensing for ‘scheduled’ activities. All power plants and industrial facilities require a licence to operate. The licence is additional to, and independent of, the POEO Regulation requirements and licence conditions may specify emission limits that are more stringent and/or include emission limits for pollutants not covered by the POEO Regulation. The tighter requirements are included when warranted by the individual circumstances of each premise, such as its proximity to the local population. The [NSW Environment Protection Authority](#), an independent statutory body, is responsible for issuing the licences and for administering the POEO Regulation. It is the environment regulator for NSW. Emission limits from coal combustion at scheduled premises are given in the POEO Regulation.

#### Emission standards for particulates

Plant type	Emission limit, mg/m <sup>3</sup>
Group 1	400
Group 2, 3 or 4	250
Group 5	100
Group 6	50

The particulate emission limit applies to coal burning appliances, power generating plant and activities in power plants, iron and steel facilities, paper industry and other industrial facilities. However, the emission limit value for NO<sub>x</sub> (as NO<sub>2</sub> or NO or both as NO<sub>2</sub> equivalent) varies according to the industry, as indicated in the following table.

## Emission standards for NO<sub>x</sub>

Industry	Activity or plant	Plant type	Emission limit, mg/m <sup>3</sup>
Power generation	Any boiler, operating on fuel other than gas, including one used in connection with an electricity generating system with a capacity of ≥30 MW	Group 1, 2, 3 or 4 Group 5 Group 6	2500 800 500
	Any turbine, operating on fuel other than gas, used in connection with an electricity generating system with a capacity of ≥30 MW	Group 1, 2, 3 or 4 Group 5 Group 6	2500 150 90
Aluminium: primary production	Pre-baked anode production	Group 1, 2, 3 or 4 Group 5 Group 6	2500 2000 300
Aluminium: secondary production	Any activity or plant, including any smelting, refining or holding furnace	Group 1 Group 2, 3 or 4 Group 5 Group 6	2500 2500 2000 300
Cement production	Any kiln (except lime kilns)	Group 1, 2, 3 or 4 Group 5 Group 6	2500 2000 500
Iron and steel: primary production	Any fuel burning equipment, power-generating plant, kiln, or furnace	Group 1, 2, 3 or 4 Group 5 Group 6	2500 2000 500
Iron and steel: secondary production	Any activity or plant except electric arc furnace	Group 1, 2, 3 or 4 Group 5 Group 6	2500 2000 350
Non-ferrous metals (excluding aluminium): primary production	Any fuel burning equipment	Group 1, 2, 3 or 4 Group 5 Group 6	2500 2000 350
Non-ferrous metals (excluding aluminium): secondary production	Any activity or plant	Group 1, 2, 3 or 4 Group 5 Group 6	2500 2000 300
Paper, paper pulp or pulp products	Any boiler used in connection with power generation	Group 1, 2, 3 or 4 Group 5 Group 6	2500 2000 300
Scheduled premises: general activities and plants	Any activity or plant (except boilers and turbines listed below)	Group 1, 2, 3 or 4 Group 5 Group 6	2500 2000 350
	Any boiler, operating on a fuel other than gas, including one used in connection with an electricity generating system with a capacity of <30 MW	Group 1, 2, 3 or 4 Group 5 or 6	2500 500
	Any turbine, operating on fuel other than gas, used in connection with an electricity generating system with a capacity of <10 MW	Group 1, 2, 3 or 4 Group 5 or 6	2500 90
	Any turbine, operating on fuel other than gas, used in connection with an electricity generating system with a capacity of ≥10 MW and <30 MW	Group 1, 2, 3 or 4 Group 5 Group 6	2500 150 90

### Emission standards for sulphur trioxide (SO<sub>3</sub>)

Industry	Equipment type	Plant type	Emission limit, mg/m <sup>3</sup>
General activities and plant	Any activity or plant	Group 1	200
		Group 2, 3, 4, 5 or 6	100

### Emission standards for fluorine (F<sub>2</sub>) and any compound containing fluorine, as total fluoride (HF equivalent)

Industry	Activity or plant	Plant type	Emission limit, mg/m <sup>3</sup>
Power generation	Any activity or plant using coal	Group 1	100
		Group 2, 3, 4, 5 or 6	50
Cement production	Any kiln fired on coal	Group 1	100
		Group 2, 3, 4, 5 or 6	50
General activities and plant	Any activity or plant, except manufacture of aluminium from alumina	Group 1	100
		Group 2, 3, 4, 5 or 6	50

### Emission standards for smoke

Industry	Activity or plant	Plant type	Emission limit
Power generation	Any activity or plant using coal	Group 1, in approved circumstances	Ringelmann 3 or 60% opacity
		Group 1, in other circumstances	Ringelmann 2 or 40% opacity
		Group 2, 3, 4, 5 or 6, in approved circumstances	Ringelmann 3 or 60% opacity
		Group 2, 3, 4, 5 or 6, in other circumstances	Ringelmann 1 or 20% opacity
Aluminium: primary production	pre-baked anode production	Group 1, in approved circumstances	Ringelmann 3 or 60% opacity
		Group 1, in other circumstances	Ringelmann 2 or 40% opacity
		Group 2, 3, 4, 5 or 6, in approved circumstances	Ringelmann 3 or 60% opacity
		Group 2, 3, 4, 5 or 6, in other circumstances	Ringelmann 1 or 20% opacity
Aluminium: secondary production	Any activity or plant	Group 1, in approved circumstances	Ringelmann 3 or 60% opacity
		Group 1, in other circumstances	Ringelmann 2 or 40% opacity
		Group 2, 3, 4, 5 or 6, in approved circumstances	Ringelmann 3 or 60% opacity
		Group 2, 3, 4, 5 or 6, in other circumstances	Ringelmann 1 or 20% opacity
Cement production	Any kiln	Group 1, in approved circumstances	Ringelmann 3 or 60% opacity
		Group 1, in other circumstances	Ringelmann 2 or 40% opacity
		Group 2, 3, 4, 5 or 6, in approved circumstances	Ringelmann 3 or 60% opacity
		Group 2, 3, 4, 5 or 6, in other circumstances	Ringelmann 1 or 20% opacity

Iron and steel: primary production	Any fuel burning equipment, power-generating plant, kiln or furnace	Group 1, in approved circumstances Group 1, in other circumstances Group 2, 3, 4, 5 or 6, in approved circumstances Group 2, 3, 4, 5 or 6, in other circumstances	Ringelmann 3 or 60% opacity Ringelmann 2 or 40% opacity Ringelmann 3 or 60% opacity Ringelmann 1 or 20% opacity
Non-ferrous metals (excluding aluminium): primary production	Any fuel burning equipment	Group 1, in approved circumstances Group 1, in other circumstances Group 2, 3, 4, 5 or 6, in approved circumstances Group 2, 3, 4, 5 or 6, in other circumstances	Ringelmann 3 or 60% opacity Ringelmann 2 or 40% opacity Ringelmann 3 or 60% opacity Ringelmann 1 or 20% opacity
Non-ferrous metals (excluding aluminium): secondary production	Any activity or plant	Group 1, in approved circumstances Group 1, in other circumstances Group 2, 3, 4, 5 or 6, in approved circumstances Group 2, 3, 4, 5 or 6, in other circumstances	Ringelmann 3 or 60% opacity Ringelmann 2 or 40% opacity Ringelmann 3 or 60% opacity Ringelmann 1 or 20% opacity
Paper, paper pulp or pulp products	Any boiler used in connection with power generation	Group 1, in approved circumstances Group 1, in other circumstances Group 2, 3, 4, 5 or 6, in approved circumstances Group 2, 3, 4, 5 or 6, in other circumstances	Ringelmann 3 or 60% opacity Ringelmann 2 or 40% opacity Ringelmann 3 or 60% opacity Ringelmann 1 or 20% opacity
General activities and plant	Any activity where coal is burnt	Group 1, in approved circumstances Group 1, in other circumstances Group 2, 3, 4, 5 or 6, in approved circumstances Group 2, 3, 4, 5 or 6, in other circumstances	Ringelmann 3 or 60% opacity Ringelmann 2 or 40% opacity Ringelmann 3 or 60% opacity Ringelmann 1 or 20% opacity

Notes:

Reference conditions for the emission limit values relating to:

- Group 1, 2, 3 or 4 facilities are 0°C, 101.3 kPa and on a dry flue gas basis with 12% CO<sub>2</sub> in the flue gas for particulates and 0°C, 101.3 kPa and on a dry flue gas basis for all other pollutants, except smoke. Reference conditions for smoke, if determining whether the opacity limit has been exceeded, is a gas stream temperature above the dew point, and the path length corrected to the stack exit diameter as specified in the approved publication.
- Group 5 or 6 facilities are 0°C, 101.3 kPa and on a dry flue gas basis with 7% O<sub>2</sub> in the flue gas for any fuel burning equipment using coal; 0°C, 101.3 kPa and on a dry flue gas basis with 15% O<sub>2</sub> in the flue gas for gas turbines; and 0°C, 101.3 kPa and on a dry flue gas basis for any other activity or plant.

An activity carried out, or plant operated on scheduled premises belongs to:

Group 1 if it:

- started before 1 January 1972
- started on or after 1 January 1972 as a result of a pollution control approval granted under the Pollution Control Act 1970 pursuant to an application made before 1 January 1972;

Group 2 if it started on or after 1 January 1972 as a result of a pollution control approval granted under the Pollution Control Act 1970 pursuant to an application made on or after 1 January 1972 and before 1 July 1979;

Group 3 if it started on or after 1 July 1979 as a result of a pollution control approval granted under the Pollution Control Act 1970 pursuant to an application made on or after 1 July 1979 and before 1 July 1986;

Group 4 if it started on or after 1 July 1986 as a result of a pollution control approval granted under the Pollution Control Act 1970 pursuant to an application made on or after 1 July 1986 and before 1 August 1997;

Group 5 if it started on or after 1 August 1997 as a result of:

- a pollution control approval granted under the Pollution Control Act 1970 pursuant to an application made on or after 1 August 1997 and before 1 July 1999, or
- an environment protection licence granted under the Protection of the Environment Operations Act 1997 pursuant to an application made on or after 1 July 1999 and before 1 September 2005;

Group 6 if it started on or after 1 September 2005, as a result of an environment protection licence granted under the Protection of the Environment Operations Act 1997 pursuant to an application made on or after 1 September 2005. However, the plant belongs to Group 5 if it is the subject of a development consent in respect of which the NSW Environmental Protection Authority had given general terms of approval (within the meaning of section 93 of the Environmental Planning and Assessment Act 1979) before 1 September 2005.

In addition, an emission unit (that is, a unit which emits, treats or processes air impurities or controls the discharge of air impurities into the atmosphere) belongs to Group 6 if:

- the emission unit is in Group 1, 2, 3, 4 or 5 and is altered as a result of the modification of development consent under section 96 (2) of the [Environmental Planning and Assessment Act 1979](#) pursuant to an application made on or after 1 September 2005, or the variation of the licence for the plant, and the effect of the alteration is that there is an increase in the emission of air impurities, or a change in the nature of the air impurities emitted or the intensity with which air impurities are emitted, from the plant of which the emission unit forms part, or to which it is attached
- an emission unit in Group 1, 2, 3, 4 or 5 is replaced in a plant operating in the Greater Metropolitan Area.

From 1 January 2008, all plants belonging to Group 1 belong to Group 2. However, if the conditions of the licence state that it belongs to Group 1, then it remains in this group.

From 1 January 2012, plants belonging to Group 2 (including any previously belonging to Group 1) belong to Group 5, unless the conditions of the licence state that it belongs to Group 1 and 2.

### NORTHERN TERRITORY

The Northern Territory follows the air quality standards of the Ambient Air Quality NEPM 2008 (see the earlier *National Environment Protection (Ambient Air Quality) Measure* Section). A [monitoring plan](#) for the six criteria air pollutants has been set up.

### QUEENSLAND

The objective of the [Environmental Protection Act 1994](#) is to protect Queensland's environment. Under the Act, environmental protection policies were developed to cover specific aspects of the environment. The [Environmental Protection \(Air\) Policy 2008](#) (latest version current as at 8 July 2016) provides state-wide air quality standards for various pollutants, including particulate matter, nitrogen dioxide, sulphur dioxide and carbon monoxide. The limits for the health and well-being follow the air quality standards of the Ambient Air Quality NEPM 2008 (see the earlier *National Environment Protection (Ambient Air Quality) Measure* Section), with additional pollutants. The most recent limits are also given on the Queensland Government website via this [link](#). Although the policy does not regulate emissions from individual industrial facilities, organisations licensing emissions from a power plant would normally consider the effect of any emissions on ambient concentrations near population centres.

### SOUTH AUSTRALIA

The [Environment Protection Authority](#) is South Australia's primary independent environment protection regulator, responsible for administering the Environment Protection Act 1993, as well as developing guidelines and codes of practice. The [Environment Protection Act 1993](#) provides the regulatory framework to protect South Australia's environment, including air, land and water. Emission limits for air pollutants from power plants and industrial processes are set out in the [South Australia Environment Protection \(Air Quality\) Policy 2016](#). The emission limits relevant to coal combustion equipment are listed in the following table.

Pollutant	Activity	Plant size	Emission limit, mg/m <sup>3</sup>
Particulates	Any activity <sup>1</sup>	Not applicable	100
NO <sub>x</sub>	Fuel burning <sup>2</sup>	Input rate >150,000 MJ/h (gross)	500
	Power generation	≥250 MW	700
	Gas turbines	Power generation ≥10 MW Power generation <10 MW	150 90
Sulphuric acid mist or SO <sub>3</sub>	Any activity	Not applicable	100 (as SO <sub>3</sub> equivalent)
CO	Any activity	Not applicable	1000
Mercury or its compounds	Any activity	Not applicable	3 (as Hg)

<sup>1</sup> Except heating metals or metal ores

<sup>2</sup> Except internal combustion engines or manufacture of nitric acid, sulphuric acid, glass or cement

Reference conditions for the emission limit values are:

For particulates

- 0°C, 101.3 kPa and on a dry gas basis with 12% CO<sub>2</sub> (by volume) in the flue gas for boilers and incinerators
- 0°C, 101.3 kPa and on a dry gas basis for other processes

For NO<sub>x</sub>

- 0°C, 101.3 kPa and on a dry gas basis with 7% O<sub>2</sub> (by volume) in the flue gas for fuel burning and power generation
- 0°C, 101.3 kPa and on a dry gas basis with 15% O<sub>2</sub> (by volume) in the flue gas for gas turbines for power generation

For other pollutants

- 0°C, 101.3 kPa and on a dry gas basis

## **TASMANIA**

The [Environment Protection Authority](#) (EPA) is Tasmania's principal environmental regulator. Its jurisdiction includes environmental management and pollution control matters deriving from the [Environmental Management and Pollution Control Act 1994](#) (EMPCA), which is the primary environment protection and pollution control legislation in Tasmania. The emission limit (specified as in-stack concentrations) for pollutants discharged to the atmosphere is given in the [Environment Protection Policy \(Air Quality\) 2004](#) (Air Quality EPP), which came into force on 1 June 2005. The policy was reviewed in 2015 ([Review report](#)) by the Division of the Department of Primary Industries, Parks, Water and Environment, as mandated in the EMPCA. The emission limits specified in the Air Quality EPP relevant to coal combustion equipment are given in the following table.

## Emission limits for in-stack concentrations

Pollutant	Plant type	Emission limit, mg/m <sup>3</sup>
Particulate matter	Any fuel burning equipment or industrial plant and any trade, industry or process	100
NO <sub>x</sub> (as NO <sub>2</sub> )	Power generating boiler <30 MW	500
	≥30 MW	800
	Industrial boiler	500
	Any trade, industry or process other than for the manufacture of glass using sodium nitrate	2000
Sulphuric acid mist or sulphur trioxide or both	Any trade, industry or process	100 (as SO <sub>3</sub> equivalent)
Fluorine and compounds, as HF or HF equivalent	Any trade, industry or process, other than a primary aluminium smelter manufacturing aluminium from alumina	50 (HF or HF equivalent)
Smoke	Any fuel burning equipment or industrial plant and any trade, industry or process	A concentration no darker than Ringelmann 1, except that the concentration may be darker (but not exceeding Ringelmann 3) for up to 10 minutes in any period of 8 h for lighting a boiler or blowing soot, but only as long as all practicable means are employed to prevent or minimise the emission of air impurities <sup>1</sup>

<sup>1</sup> The limit does not apply to emissions involving water vapour

### Notes:

The emission limits apply to new stationary sources and facility upgrades.

The limits do not apply to boilers with a heating capacity (as determined by the apparatus by which it is heated) of less than 110 MJ/h.

Reference conditions for the emission limit values are 0°C, 101.3 kPa and on a dry flue gas basis with 7% O<sub>2</sub> in the flue gas (except for smoke).

### VICTORIA

The Environment Protection Act 1970 is Victoria's primary environment protection legislation. It aimed to prevent pollution and environmental damage by setting environmental quality objectives and establishing programmes to meet them. It established the [Environment Protection Authority](#) (EPA) as the independent statutory body for environmental regulation and policy. The Environment Protection Act 1970 has been repealed and replaced by the [Environment Protection Amendment Act 2018](#), which comes into force on 1 July 2020. An important part of this Act is the 'general environmental duty', which means that any person engaging in an activity that can cause harm to human health or the environment must minimise the risks. It introduces a more flexible and risk-based approach. This includes a range of new tools, called permissions. Registrations, permits, licences and registrations are permissions used to regulate activities according to the level of risk they pose. The Act also empowers the EPA to bring businesses who

are using poor environmental practices up to standard. Consequential amendments to the Climate Change Act 2017 are also included.

The [Climate Change Act 2017](#) came into effect on 1 November 2017. It set a reduction target of net zero greenhouse gas emissions by 2050. Under this Act, EPA must consider climate change in works approval and licensing decisions, and when recommending new or amended state environment protection policies.

Air quality is covered in the State Environment Protection Policy (Ambient Air Quality) and the State Environment Protection Policy (Air Quality Management). The *State Environment Protection Policy (Ambient Air Quality)* sets air quality objectives and goals for Victoria. It adopted the requirements of the National Environment Protection (Ambient Air Quality) Measure (*see National Environment Protection (Ambient Air Quality) Measure* section). A [consolidated version](#), which includes the latest amendments, is available.

The [State Environment Protection Policy \(Air Quality Management\)](#) established the framework for managing emissions into the air in Victoria from all sources of air pollutants, so that the air quality objectives outlined in the State Environment Protection Policy (Ambient Air Quality) are met. It addresses not only ambient (or regional) air quality, but also the management of particular sources, such as industry, and local air quality impacts, including air toxics, greenhouse gases and ozone-depleting substances. The minimum emission limits for stationary sources applicable to coal combustion equipment are given in the following table. Scheduled premises, which include power plants, also require a licence to operate that can contain stricter emission limits than those given in the table.

#### Emission limits for stationary sources

Pollutant	Plant type	Facility size	Emission limit value
Visible emissions	All stationary sources		Ringelmann 1‡
Combustion particles	Solid fuel fired units		0.5 g/m <sup>3</sup>
Particulate matter	All stationary sources except for fuel-fired units used for steam or electricity generation and incinerators	0-3 kg/min*	17.5 g/min
		3-10 kg/min*	17.5 plus 2.5 per kg/min process weight in excess of 3
		10-100 kg/min*	35 plus 1.0 per kg/min process weight in excess of 10
		>100 kg/min*	125 plus 0.2 kg/min process weight in excess of 100
Total particulate matter	All stationary sources		0.5 g/m <sup>3</sup>
NO <sub>x</sub>	Fuel burning units other than internal combustion engines and glass manufacturing plants	>150,000 MJ/h, gross (heat input rate)	1 g/m <sup>3</sup> (as NO <sub>2</sub> )
Sulphuric acid mist and sulphur trioxide	All stationary sources		0.2 g/m <sup>3</sup> (as SO <sub>3</sub> )
Fluorine compounds	All stationary sources except for new plant manufacturing aluminium from alumina		0.05 g/m <sup>3</sup> (expressed as HF)

‡ Ringelmann 2 acceptable for periods aggregating no more than 3 min in any 60 min period. The limit does not apply to emission of water vapour;

\* Process weight rate, where process weight is the total weight of coal and other materials introduced into the unit that may discharge contaminants into the atmosphere

## Emission limits for new stationary sources in the Air Quality Control Regions

Pollutant	Plant type	Facility size	Emission limit value
Visible emissions	All stationary sources		Ringelmann 1‡
Combustion particles	All stationary sources except incinerators		0.25 g/m <sup>3</sup>
Particulate matter	All stationary sources except fuel fired units used for steam or electricity generation and incinerators	0-3 kg/min*	14 g/min
		3-10 kg/min*	14 plus 2.0 per kg/min process weight in excess of 3
		10-100 kg/min*	28 plus 0.8 per kg/min process weight in excess of 10
		>100 kg/min*	100 plus 0.18 per kg/min process weight in excess of 100
Total particulate matter	All stationary sources except incinerators		0.25 g/m <sup>3</sup>
NO <sub>x</sub>	Fuel burning units except internal combustion engines and glass manufacturing plants	>150,000 MJ/h, gross (heat input rate)	0.5 g/m <sup>3</sup> (as NO <sub>2</sub> )
	Coal-fired power plants	≥250 MWe	0.7 g/m <sup>3</sup> ‡ (as NO <sub>2</sub> )
Sulphuric acid mist and sulphur trioxide	All stationary sources except for sulphuric acid plants		0.2 g/m <sup>3</sup> (expressed as SO <sub>3</sub> )
Fluorine compounds	All sources except for plant manufacturing aluminium from alumina		0.05 g/m <sup>3</sup> (expressed as HF)
CO	All stationary sources except internal combustion engines and cold blast cupolas		2.5 g/m <sup>3</sup>

‡ Ringelmann 2 acceptable for periods aggregating no more than 3 min in any 60 min period. The limit does not apply to emission of water vapour;

\* Process weight rate, where process weight is the total weight of coal and other materials introduced into the unit that may discharge contaminants into the atmosphere;

† This limit may be relaxed to 0.78 g/m<sup>3</sup> in individual cases where it can be shown that 0.7 g/m<sup>3</sup> is too restrictive in relation to such matters as the type of fuel being burned, existing emission control technology, and factors of health and safety

### Notes:

‘Air Quality Control Region’ means a segment of the air environment which, because of its population size or density, industrialisation, projected development or meteorological characteristics, has been gazetted as requiring the regional effects of emissions of pollutants to the air environment to be considered in formulating control requirements. Two such regions are the Port Philip Air Quality Control Region and Latrobe Valley Air Quality Control Region.

‘New source’ means a stationary source of air pollutants for which development works are yet to commence. An existing source may be classified as a new source if it is to be relocated, or if modifications to its equipment or processes are likely to lead to an increase in the quantity of or an alteration in the nature of pollutants emitted.



Reference conditions for the emission limit values are 0°C, 101.3 kPa and on a dry flue gas basis for particulate matter, but with the additional requirement of 12% CO<sub>2</sub> in the flue gas for combustion particles, and 7% O<sub>2</sub> in the flue gas for NO<sub>x</sub>.

### **WESTERN AUSTRALIA**

There are no state-wide air quality standards in force in Western Australia. However, the state monitors key pollutants to meet the ambient air quality limit standards specified in the national Ambient Air Quality NEPM 2008 (see the earlier *National Environment Protection (Ambient Air Quality) Measure* section). Western Australia has Environmental Protection Policies (EPPs). EPPs are statutory policies developed under Part III of the [Environment Protection Act 1986](#) (EP Act). They have the force of law from the day they are published in the Western Australian Government Gazette. EPPs are developed, for instance, to establish environmental values and environmental quality objectives for a particular environment or component of the environment. [One EPP](#) has set a limit of 0.25 ppm per year for SO<sub>2</sub> emissions in the Goldfields residential areas.

In addition, power plant operators are issued with licences under the EP Act. These include emission limits that the power plants must meet.

This paper reflects the IEACCC understanding of the relevant legislation and is not a substitute for the official version. The IEACCC does not guarantee the accuracy of the data included in this paper and accepts no responsibility for any consequences of their use.

Updated: August 2019