

FUTURE SOONER CITIZENS INQUIRY



FUTURE SOONER CITIZENS INQUIRY

Nearly 40 years ago three doctors noted concerns about the amount of Childhood Asthma and adult Recurrent Bronchitis there was attributing it to the power houses in the area.

J. E. VAUGHAN & G. I. WHYTE PTY. LTD.

DR. J. R. PHILLIPS, M.B., Ch.B.
DR. J. E. VAUGHAN, M.B.B.S.
DR. G. I. WHYTE, M.B.B.S. (Hons.)

To whom it may concern,

We are three general practitioners who have worked in the Lake Munmorah, Gwandalan area from 1980 until 1985. Whilst we have no statistical evidence, it is our experience that the incidence of:

- (1) Asthma in childhood
- (2) Recurrent Brouchitis in adults who do not smoke

is greater than what one would expect from the incidence overall in this country of these diseases.

We estimate that the incidence of asthma is 30% in our area in children under 12 compared with a national incidence of 15%. We believe this could be directly attributable to airborne pollutants from the numerous power houses in the area.

FUTURE SOONER CITIZENS INQUIRY

NSW Health acknowledges that air pollution, including from coal fired power stations, is associated with an increase in hospital admissions and deaths from cardiovascular and respiratory disease

Dear Dr Thrift

Thank you for writing about health impacts in relation to coal-fired power stations.

I acknowledge your concerns and appreciate your advocacy on this matter.

NSW Health acknowledges that air pollution, including from coal fired power stations, is associated with an increase in hospital admissions and deaths from cardiovascular and respiratory disease.

NSW Health has noted the recommendations from Public Works Committee Inquiry into Costs for remediation of sites containing coal ash repositories, particularly recommendation 6 which requested that NSW Health undertake an epidemiological assessment of the health impacts of coal ash. The NSW Government responded to the recommendation that an epidemiological assessment of the health of residents near coal ash dams will not establish whether observed health outcomes are attributable to chemicals in coal ash but has committed to other alternative study types (exposure assessment or health risk assessment) in response to community concerns.

NSW Health, with the assistance of NSW Department of Climate Change, Energy, the Environment and Water, has progressed work on an exposure assessment study and is committed to engaging with the community.

I regret that I will be unable to meet with Future Sooner about this matter due to existing commitments. However, the Public Health Units will be in contact with relevant stakeholder groups when the report is ready to be shared.

Thank you again for writing. For more information, please contact hssg-ehbsurveillance@health.nsw.gov.au.

Yours sincerely



Ryan Park MP
Minister for Health
Minister for Regional Health
Minister for the Illawarra and the South Coast

FUTURE SOONER CITIZENS INQUIRY

A coal fired power plant is a prodigious generator of environmental pollution releasing large quantities of particles of as aerosols in the atmosphere. The continuous inhalation of these hazardous substances triggers many diseases such respiratory and cardiovascular disease, systemic inflammation, and neurodegeneration.

The inhalation of hazardous substances such as coal micro-particles, nanoparticles, and its by-products constitutes an invisible risk to human health.

Although coal is predominantly composed of carbon, there are many other constituents including sulfur, nitrogen, organometallic compounds, and minerals, that contribute to the formation of extremely toxic secondary compounds that come in contact with the atmosphere.

'3.4. Brain

The pollutants released by power plants reach their surrounding neighborhood causing a public health problem, and the brain is a target. Acute periods of exposition to high PM2.5 and black carbon levels are sufficient to influence children's cognitive development, including memory impairment'

Alvarez-Pedrerol et al., 2017

<https://www.sciencedirect.com/science/article/pii/S266675922030050>

 View PDF

[Download full issue](#)

Abstract

Attempts to secure more energy, food, and infrastructure leave a trail of environmental contamination and human health hazards. Coal is a fossil fuel and nonrenewable energy source that is combusted and used to generate electricity. A coal-fired power plant is a prodigious generator of environmental pollution, releasing large quantities of particles as aerosols in the atmosphere. The inhalation of hazardous substances such as coal micro-particles, nanoparticles, and its by-products constitutes an invisible risk to human health. Although coal is predominantly composed of carbon, there are many other constituents including sulfur, nitrogen, organometallic compounds, and minerals, that contribute to the formation of extremely toxic secondary compounds that come in contact with the atmosphere. The continuous inhalation of these hazardous substances triggers many diseases such respiratory and cardiovascular disease, systemic inflammation, and neurodegeneration. Due to coal heterogeneity, it is extremely complex to establish all the effects of the molecules in the organism. Each cell can undergo different modifications depending on the stressing molecule. On that account, inhaling air contaminated with these particles can be highly dangerous and unpredictable. This review covers the impact of coal inhalation on the lungs, immune system, heart, reproductive system, brain, DNA, and, in general, the human health. For this review, Medline and Scopus databases were accessed, including human epidemiological, review studies, and coal characterization studies over the years. Coal as an energy source must be utilized with appropriate measures of environmental protection and to safeguard human health.

NSW HEALTH WEBSITE

'Fossil fuel combustion also results in the emission of the main ambient air pollutants affecting health which include particulate matter (PM2.5 and PM10), ozone (O3), sulphur dioxide (SO2), nitrogen dioxide (NO2) and carbon monoxide (CO).' [<https://www.health.nsw.gov.au/phb/Documents/2010-5-6.pdf>]

&

<https://www.health.nsw.gov.au/environment/air/Pages/air-pollution-overview.aspx>

<https://www.health.nsw.gov.au/environment/air/Pages/outdoor-air-pollution.aspx>

<https://www.health.nsw.gov.au/environment/air/Pages/nitrogen-dioxide.aspx>

<https://www.health.nsw.gov.au/environment/air/Pages/sulphur-dioxide.aspx>

<https://www.health.nsw.gov.au/environment/air/Pages/particulate-matter.aspx>

Sulphur Dioxide (SO2)

Sulphur dioxide is highly reactive gas with a pungent irritating smell. It is formed by fossil fuel combustion at power plants and other industrial facilities.

Natural processes that release sulphur gases include decomposition and combustion of organic matter, spray from the sea, and volcanic eruptions. It contributes to the formation of particulate matter pollution. Sulphur dioxide irritates the lining of the nose, throat and lungs and may worsen existing respiratory illness especially asthma. It has also been found to exacerbate cardiovascular diseases.

Potential health effects from exposure to sulphur dioxide:

- Narrowing of the airways leading to wheezing, chest tightness and shortness of breath
- More frequent asthma attacks in people with asthma
- Exacerbation of cardiovascular diseases

Nitrogen Dioxide (NO2)

Nitrogen dioxide is a highly reactive gas formed by emissions from motor vehicles, industry, unflued gas-heaters and gas stove tops. High concentrations can be found especially near busy roads and indoors where unflued gas-heaters are in use.

Other indoor sources can be from cigarette smoke or from cooking with gas. Outdoors, nitrogen dioxide contributes to the formation of ground-level ozone (O3) as well as particulate matter pollution. Nitrogen dioxide is a respiratory irritant and has a variety of adverse health effects on the respiratory system.

Potential health effects from exposure to nitrogen dioxide:

- Increased susceptibility to lung infections in people with asthma
- Increased susceptibility to asthma triggers like pollen and exercise
- Worsened symptoms of asthma – more frequent asthma attacks
- Airway inflammation in healthy people

Potential health effects from exposure to particulate matter:

There are many health effects from exposure to particulate matter. Numerous studies have showed associations between exposure to particles and increased hospital admissions as well as death from heart or lung diseases. Despite extensive epidemiological research, there is currently no evidence of a threshold below which exposure to particulate matter does not cause any health effects. Health effects can occur after both short and long-term exposure to particulate matter.

Short-term and long-term exposure is thought to have different mechanisms of effect. Short-term exposure appears to exacerbate pre-existing diseases while long-term exposure most likely causes disease and increases the rate of progression.

Short-term exposure (hours to days) can lead to:

- irritated eyes, nose and throat
- worsening asthma and lung diseases such as chronic bronchitis (also called chronic obstructive pulmonary disease or COPD)
- heart attacks and arrhythmias (irregular heart beat) in people with heart disease
- increases in hospital admissions and premature death due to diseases of the respiratory and cardiovascular systems.

Long-term exposure (many years) can lead to:

- reduced lung function
- development of cardiovascular and respiratory diseases
- increased rate of disease progression
- reduction in life expectancy.

FUTURE SOONER CITIZENS INQUIRY

NSW HEALTH GOVERNMENT WEBSITE

*Most PM_{2.5} is produced
from combustion of fossil
fuels and biomass (for
example wood)*

<https://www.health.gov.au/sites/default/files/documents/2022/07/enhealth-guidance-bushfire-smoke-and-health-summary-of-the-current-evidence.pdf>

1 / 3 | - 90% + | [] []

Bushfire smoke and health: Summary of the current evidence

Context

Many Australians are concerned about bushfire smoke and the impact air pollution has on their health. Bushfire smoke can affect air quality some distance away, as well as close to, a fire front, as seen during the 2019 and 2020 Australian bushfire season.

Bushfire smoke, like other forms of air pollution, includes gases and particulate matter. Particulate matter is a complex mixture of solid and liquid particles and is classified according to size:

- PM₁₀ – particles smaller than 10 microns in diameter. These contribute to visible smoke haze, can irritate the eyes, throat and lungs but are too large to enter the bloodstream.
- PM_{2.5} – particles smaller than 2.5 microns in diameter. These are too small to see and when breathed in, will penetrate deep into a person's lungs and enter the bloodstream.

Most PM_{2.5} is produced from combustion of fossil fuels and biomass (for example wood), while larger particles between 2.5 and 10 microns tend to be produced by mechanical processes such as wind erosion.

Although all air pollutants from bushfire smoke have the potential to affect health, there is good evidence that PM_{2.5} is the air pollutant of greatest concern. This is because it is present in high concentrations in smoke and because there is very strong evidence of its health effects.

The Global Burden of Disease Study has shown that outdoor PM_{2.5} is the most important environmental risk factor in Australia, responsible for 1.6 percent of the total burden of disease in 2017.

Evidence shows that the likelihood of an individual experiencing health effects as a result of exposure to PM_{2.5} depends on a number of factors. These include: the concentration of PM_{2.5} in air, the duration of exposure; the person's age and whether a person has existing medical conditions (particularly cardiorespiratory disease or asthma).

It is also acknowledged that while this document focusses on the evidence relating to the physical effects that may occur as a result of bushfires smoke, bushfires have much broader mental health and societal impacts.

1



FUTURE SOONER CITIZENS INQUIRY

NSW GOVERNMENT WEBSITE

There are many health effects from exposure to particulate matter. Numerous studies have showed associations between exposure to particles and increased hospital admissions as well as death from heart or lung diseases.

DESPITE EXTENSIVE EPIDEMIOLOGICAL RESEARCH, THERE IS CURRENTLY NO EVIDENCE OF A THRESHOLD BELOW WHICH EXPOSURE TO PARTICULATE MATTER DOES NOT CAUSE ANY HEALTH EFFECTS.

HEALTH EFFECTS CAN OCCUR AFTER BOTH SHORT AND LONG-TERM EXPOSURE TO PARTICULATE MATTER.

<https://www.health.nsw.gov.au/environment/air/Pages/particulate-matter.aspx>

> Particulate matter (PM10 and PM2.5)

Particulate matter (PM10 and PM2.5)

Particulate matter, also known as particle pollution or PM, is a term that describes extremely small solid particles and liquid droplets suspended in air. Particulate matter can be made up of a variety of components including nitrates, sulfates, organic chemicals, metals, soil or dust particles, and allergens (such as fragments of pollen or mould spores). Particle pollution mainly comes from motor vehicles, wood burning heaters and industry. During bushfires or dust storms, particle pollution can reach extremely high concentrations

The size of particles affects their potential to cause health problems:

- **PM10** (particles with a diameter of 10 micrometres or less): these particles are small enough to pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects.
- **PM2.5** (particles with a diameter of 2.5 micrometres or less): these particles are so small they can get deep into the lungs and into the bloodstream. There is sufficient evidence that exposure to PM2.5 over long periods (years) can cause adverse health effects. Note that PM10 includes PM2.5.

Potential health effects from exposure to particulate matter:

There are many health effects from exposure to particulate matter. Numerous studies have showed associations between exposure to particles and increased hospital admissions as well as death from heart or lung diseases. Despite extensive epidemiological research, there is currently no evidence of a threshold below which exposure to particulate matter does not cause any health effects. Health effects can occur after both short and long-term exposure to particulate matter.

Short-term and long-term exposure is thought to have different mechanisms of effect. Short-term exposure appears to exacerbate pre-existing diseases while long-term exposure most likely causes disease and increases the rate of progression.

Short-term exposure (hours to days) can lead to:

- irritated eyes, nose and throat
- worsening asthma and lung diseases such as chronic bronchitis (also called chronic obstructive pulmonary disease or COPD)
- heart attacks and arrhythmias (irregular heart beat) in people with heart disease
- increases in hospital admissions and premature death due to diseases of the respiratory and cardiovascular systems.

Long-term exposure (many years) can lead to:

- reduced lung function
- development of cardiovascular and respiratory diseases
- increased rate of disease progression
- reduction in life expectancy.

FUTURE SOONER CITIZENS INQUIRY

'There is strong evidence for the association between high levels of particulate matter and death, both soon and a long time after exposure. Where the particulate matter is less than 10 microns in diameter (PM10) exposure can lead to hospital admissions for cardiovascular and respiratory disease, and is associated with increased symptoms of asthma and lung cancer deaths. Table 1 (Appendix A) shows the increased health risks associated with increasing levels of particulate matter.'

Section 6 – Cancer

The latest available cancer data on both the incidence of cancer (the number of new cases of a cancer diagnosed and reported in a given year) and the mortality from cancer (the number of people who died as a result of a cancer in a given year) are presented for the most common cancers experienced by residents of HNEAHS, as well as cancers with the strongest links to particulate matter pollution. Rates are presented by HNEAHS cluster. Cancer data were extracted from the NSW Central Cancer Registry, maintained by the NSW Cancer Institute.'

Respiratory and cardiovascular diseases and cancer among residents in the Hunter New England Area Health Service - <https://www.health.nsw.gov.au/environment/Publications/HNE-respi-cardio-disease.pdf>

Evidence of health effects of air pollution from the published literature

There is convincing evidence from the literature for a link between exposure to particulate matter and adverse health outcomes. Particulate air pollution is consistently and independently related to serious health effects, including lung cancer and other cardiopulmonary mortality (Cohen, 2005). Findings from the WHO global burden of disease comparative risk assessment estimate that ambient air pollution, in terms of fine particulate air pollution (PM_{2.5} – particulate matter less than 2.5 microns in diameter), causes about 3% of mortality from cardiopulmonary disease and about 5% of mortality from cancer of the trachea, bronchus and lung (Cohen, 2005). It is estimated that each 10-µg/m³ elevation in fine particulate air pollution has been associated with approximately a 6% increased risk of lung cancer mortality (Pope, 2002).

Table 1, *Health effects of particulate matter*, presented in Appendix A, summarises the magnitude of these health effects. The concentration response functions (a measure of increased risk for a given increase in exposure) for PM_{2.5} and long-term deaths are from Pope et al (Pope et al, 2002). These concentration response functions have been used in recent reports (US EPA, 2004; AEA Technology Environment, 2005; UK DEFRA, 2006), and are also recommended by the US Environmental Protection Agency (US EPA, 2006) for use in a cost-benefit analysis and by the UK Department of Health (UK Department of Health, 2009).

There are no published Australian cohort studies on the association between particulate matter and long-term deaths.

Association between PM_{2.5} and cardiovascular disease hospital admissions

The risk estimates presented are from Moolgavkar et al (1.4% increase for 18-64 years and 1.6% increase for 65+ years for a 10 µg/m³ increase in PM_{2.5}) (Moolgavkar, 2000; Moolgavkar, 2003). The risk estimates from the study of short-term health effects of air pollution on daily mortality in four Australian cities (Brisbane, Melbourne, Perth and Sydney) (5.1% increase for a 10-µg/m³ increase in PM_{2.5}) (Simpson et al, 2005) and the study of the associations between outdoor air pollution and cardiovascular hospital admissions for elderly people living in seven cities in New Zealand and Australia (13.7% increase for a 10-µg/m³ increase in PM_{2.5}) (Barnett et al, 2006) are considerably higher than those of Moolgavkar et al. The authors of the four cities study considered their results indicative only, due to the small number of cities included in the analysis (Simpson et al, 2005).

Effects of PM₁₀ and hospital admissions for respiratory disease

The WHO concentration response functions are presented (RR = 1.008%, 95%CI = 1.0048-1.0112; all ages, for a 10-µg/m³ increase in PM₁₀) (World Health Organization, 2000). In a previously published cost-benefit analysis of air pollution, the percentage change in respiratory hospital admissions for a 10-µg/m³ change in PM₁₀ has ranged from 0.8% (NSW DEC, 2005; UK DEFRA, 2006) to 2.28% (Fisher et al, 2005).

In Australia, the four cities study reported an increase in respiratory disease admissions in those 65 years and over of 2.9% and the authors considered the results indicative only (Simpson et al, 2005), whereas Morgan et al in a recent study reported a 1% increase in respiratory disease hospital admissions for all ages for a 10-µg/m³ increase in PM₁₀ (Morgan et al, 2010).

This report focuses on those diseases and causes of death that have been found to be associated with exposure to air pollutants. Analysis has also been undertaken on some diseases about which the community of the Hunter New England Area Health Service (HNEAHS) of New South Wales (NSW) has expressed a concern.

This report uses reliable, routinely collected health data to:

- 1) assess the health of the residents of the HNEAHS of NSW
- 2) to compare the health of the residents of the HNEAHS to the health of residents in other parts of NSW
- 3) examine variation in health within HNEAHS in relation to the distribution of coal mining and coal-powered electrical power generation activity within this area.

What do we know about air pollution and health?

Clean air is considered to be a basic requirement of human health and wellbeing (WHO 2005). The health effects of air pollution range from mild and temporary respiratory symptoms through to asthma, cardiovascular conditions, chronic lung disease, cancer and premature death. Both short-term and long-term exposure to air pollutants can cause disease as susceptibility to illness and disease depends on the duration and degree of exposure to the pollutant. Air pollutants are particularly harmful to the very young, elderly people and people with chronic respiratory or cardiovascular diseases (Australian Institute of Health and Welfare, 2008).

The six key air pollutants to which most Australians are exposed are particulate matter, ozone, carbon monoxide, nitrogen dioxide, sulphur dioxide and lead. Of these major air pollutants, ozone and particulate matter are of most concern in ambient air.

Dust from open-cut coal mining could contain a wide

exposure to particulate matter far outweighs that attributable to other ambient air pollutants. Particulate matter from open-cut coal mining activities consists almost wholly of dust and particles from the earth above the coal, and does not contain much actual coal dust.

Particulate matter

Particulate matter can arise from various sources such as motor cars, mining activity, industrial processes, agricultural practices (amplified in drought conditions), wood burning (domestic heating), unflued gas heating and cooking, bushfires, wind-blown dust and tobacco smoke. Particulate matter can affect a person's health by aggravating respiratory diseases; irritating upper airways and eyes; increasing the risk of death from chronic respiratory and cardiovascular diseases (Pope et al, 2002).

There is **strong** evidence for the association between high levels of particulate matter and death, both soon and a long time after exposure. Where the particulate matter is less than 10 microns in diameter (PM₁₀) exposure can lead to hospital admissions for cardiovascular and respiratory disease, and is associated with increased symptoms of asthma and lung cancer deaths. Table 1 (Appendix A) shows the increased health risks associated with increasing levels of particulate matter.

How do we measure air quality?

The National Environment Protection and Heritage Council has set national air quality standards (National Environment Protection Measures) for the six key air pollutants. Since 2002, the standards are legally binding on all jurisdictions and require them to monitor air quality in order to identify potential air quality problems (Australian Government. Air Quality; <http://www.environment.gov.au/atmosphere/airquality/publications/standards.html>).

The air quality across NSW and the Hunter Valley is monitored by the NSW Department of the Environment,

Table 2. Hunter New England Area Health Service, NSW, estimated total residential population by cluster and local government area, 2009

HNEAHS cluster	Local government area	Population
Greater Newcastle	Lake Macquarie	195 479
	Newcastle	153 171
	Port Stephens	67 144
	TOTAL	415 794
Lower Hunter	Cessnock	49 751
	Dungog	8539
	Maitland	69 878
	Singleton	23 747
	TOTAL	151 913
Lower Mid North Coast	Gloucester	4995
	Greater Lakes	35 986
	Greater Taree	47 866
	TOTAL	88 847
Mcintyre	Inverell	16 169
	Gwydir	5421
	TOTAL	21 591
Mehi	Moree Plain	14 427
	Narrabri	13 454
	TOTAL	27 881
Peel	Gunnedah	11 840
	Tamworth	57 066
	Walcha	3291
	TOTAL	72 197
Tablelands	Armidale Dumaresq	24 538
	Guyra	4404
	Tenterfield	6812
	Uralla	6008
	Glen Innes Severn	9065
	TOTAL	50 827
Upper Hunter	Muswellbrook	16 167
	Upper Hunter Shire	13 524
	Liverpool Plains	7825
	TOTAL	37 516
HNEAHS combined	TOTAL	866 566

Source: Australian Bureau of Statistics, ABS Estimated Resident Population

FUTURE SOONER CITIZENS INQUIRY

NSW GOVERNMENT WEBSITE

The impacts of climate change can worsen symptoms of many conditions such as heart disease, asthma and other lung conditions, and mental health.

More frequent and intense weather events caused by climate change can lead to more emergency room visits hospitalisations and deaths.

More frequent and intense bushfires can produce more smoke, with poor air quality days becoming more frequent. People with asthma and other lung conditions, diabetes and heart conditions are most at risk from poor air quality, particularly fine particulate matter (PM 2.5)

<https://www.climatechange.environment.nsw.gov.au/impacts-climate-change/climate-impacts-our-health-and-wellbeing>

The screenshot shows the NSW Government website page for 'Climate change impacts on our health and wellbeing'. The page features a navigation menu with options like 'About AdaptNSW', 'Why adapt', 'My region', 'How to adapt', and 'Resources'. A breadcrumb trail indicates the current location: 'Home > Why adapt > Impacts of climate change > Climate impacts on our health and wellbeing'. The main content area has a large header image of a beach with surfers and a central text box that reads 'Climate change impacts on our health and wellbeing'. Below this, there is a 'Key points' section with five bullet points, a 'Quick links' section with four links, and a 'Air quality effects' section with three paragraphs of text.

NSW GOVERNMENT AdaptNSW

About AdaptNSW ▾ Why adapt ▾ My region ▾ How to adapt ▾ Resources ▾

Home > Why adapt > Impacts of climate change > Climate impacts on our health and wellbeing

Climate change impacts on our health and wellbeing

Key points

- The effects of climate change are already having consequences for human health.
- The impacts of climate change can worsen symptoms of many health conditions, such as heart disease, asthma and other lung conditions, and mental health.
- More frequent and intense weather events caused by climate change can lead to more emergency room visits, hospitalisations and deaths. These events may also affect electricity supply, transport and communication systems, which in turn will affect our ability to meet an increased health services demand.
- Healthcare systems in NSW are working to improve their resilience and sustainability by addressing climate risk, implications to service delivery and reducing their carbon footprint.
- In collaboration with the [University of Sydney](#), the NSW Government oversees an extensive research program, so we can better understand and prepare for climate impacts on human health.

Quick links

- [NSW health \(climate\)](#) ↗ →
- [NSW health \(beat the heat\)](#) ↗ →
- [Human health and social impacts node](#) ↗ →
- [DPE Air Quality](#) ↗ →

Air quality effects

Climate change can cause poor air quality, which is closely linked to negative health outcomes.

More frequent and intense bushfires can produce more smoke, with poor air quality days becoming more frequent. **People with asthma and other lung conditions, diabetes and heart conditions are most at risk** from poor air quality, particularly fine particulate matter (PM2.5).

[Climate change can also affect pollen production](#), leading to worsened lung conditions such as [asthma and allergic conditions](#) such as hay fever.

The [NSW air quality monitoring network](#) provides current information on a range of air pollutants to the community to help manage air quality impacts to our health.

FUTURE SOONER CITIZENS INQUIRY

'Much of Australia's population is in the grip of an air pollution crisis caused by emissions from coal-burning power stations. In the present study, we find that due to this toxic pollution, hundreds of Australians die every year, and even more suffer from other severe health impacts throughout their lives. We estimate that each year, air pollution from coal-burning power stations is responsible for 800 premature deaths, 850 cases of low birth weight in newborns and 14,000 asthma attacks in children and young adults aged 5-19. The death toll is eight times greater than the average annual casualty number from all natural disasters combined, and still twice as high as the exceptionally high number of deaths in the recent 2019/2020 bushfire season attributed to smoke inhalation.

Air pollution from coal-burning power stations and its harm to human health

Air pollution has serious impacts on human health. Worldwide, it is responsible for 7 million deaths each year, making it the number one environmental health risk.² Coal-burning power stations emit a large range of harmful substances, including nitrogen dioxide (NO₂), sulfur dioxide (SO₂) and fine particles (PM_{2.5}), which stay airborne for a long time and can travel hundreds of kilometers from the emitting source to surrounding populated areas. Coal burning is also a key source of the toxic heavy metals mercury (Hg), arsenic (As) and lead (Pb). The rate at which mercury is deposited from the atmosphere into the ground has risen dramatically since the industrial revolution world wide.' Page 3.

<https://www.greenpeace.org.au/research/lethal-power-how-coal-is-killing-people-in-australia/>

Executive Summary

Lethal Power

GREENPEACE REPORT –

Lethal Power

How Coal is Killing People in Australia

FUTURE SOONER CITIZENS INQUIRY

The Daily Telegraph SunSpec OPENING ROOFS & AWNINGS The new standard in outdoor living CONTACT US

Search

CORONAVIRUS NEWS LOCAL SPORT ENTERTAINMENT OPINION BUSINESS LIFESTYLE EDUCATION

All things video under one video roof.

Start free trial -- vimeo

news local Express Advocate



© Torrens University Public Health Information Development Unit (PHIDU) researchers Sarah McDonald (left) and Clair Marsh analyse data on the new cancer atlas. Picture: supplied

The Coast suburbs with above average cancer rates

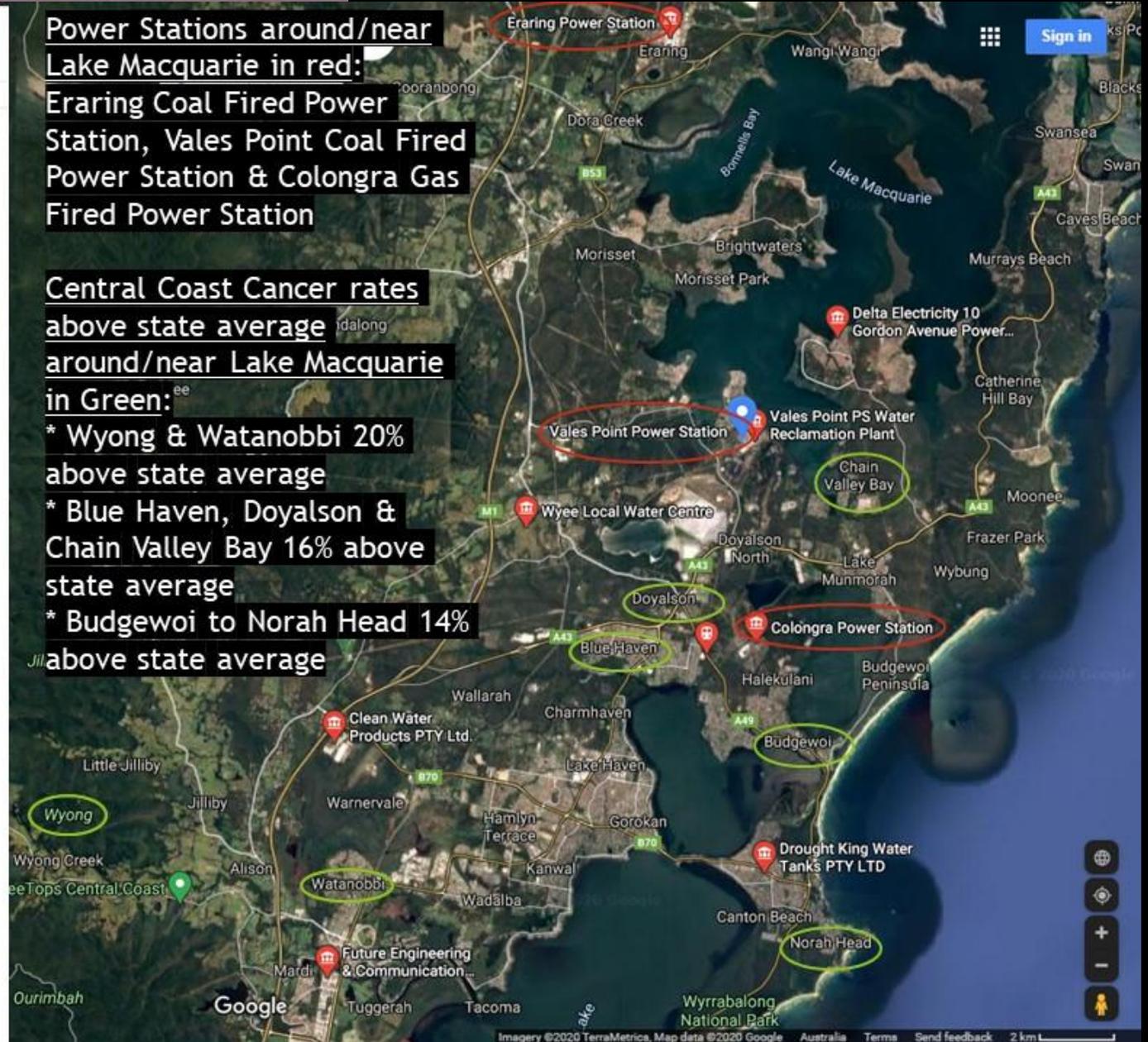
Richard Noone, Central Coast Gosford Express Advocate
July 19, 2017 4:02pm

WELCOME to Wyong — the cancer capital of the Central Coast where rates are 20 per cent higher overall than the state average.

Exclusive new data reveals the northern half of the Central Coast is a veritable cancer cluster with rates of all forms of the disease 20 per cent above the state average at Wyong and Watanobbi, 16 per cent higher at Blue Haven, Doyalson and Chain Valley Bay, and 14 per cent at Budgewoi to Norah Head.

The cancer figures have been made available for the first time, thanks to a three-year project by Torrens University's Public Health Information Development Unit (PHIDU) in South Australia.

Start free trial -- vimeo



SUBURB / POSTCODE: Morisset - Cooranbong
 INDICATOR: Diagnoses
 CANCER TYPE: All cancers
 CHARACTERISTIC: Invasive
 SEX: MALE FEMALE ALL

146,627 New cases per year
 618.3 Rate per 100k



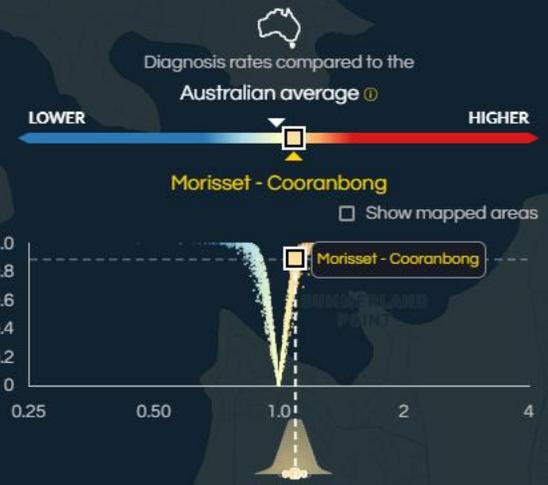
Area Overview

Data overview of your selected area

All cancers	10% above the Australian average, likely to be a real difference
Bladder cancer	7% above the Australian average, unlikely to be a real difference
Cooranbong Bowel cancer	22% above the Australian average, likely to be a real difference
Brain cancer	4% above the Australian average, unlikely to be a real difference
Classic myeloproliferative	24% above the Australian average, unlikely to be a real difference

Morisset - Cooranbong (2019)

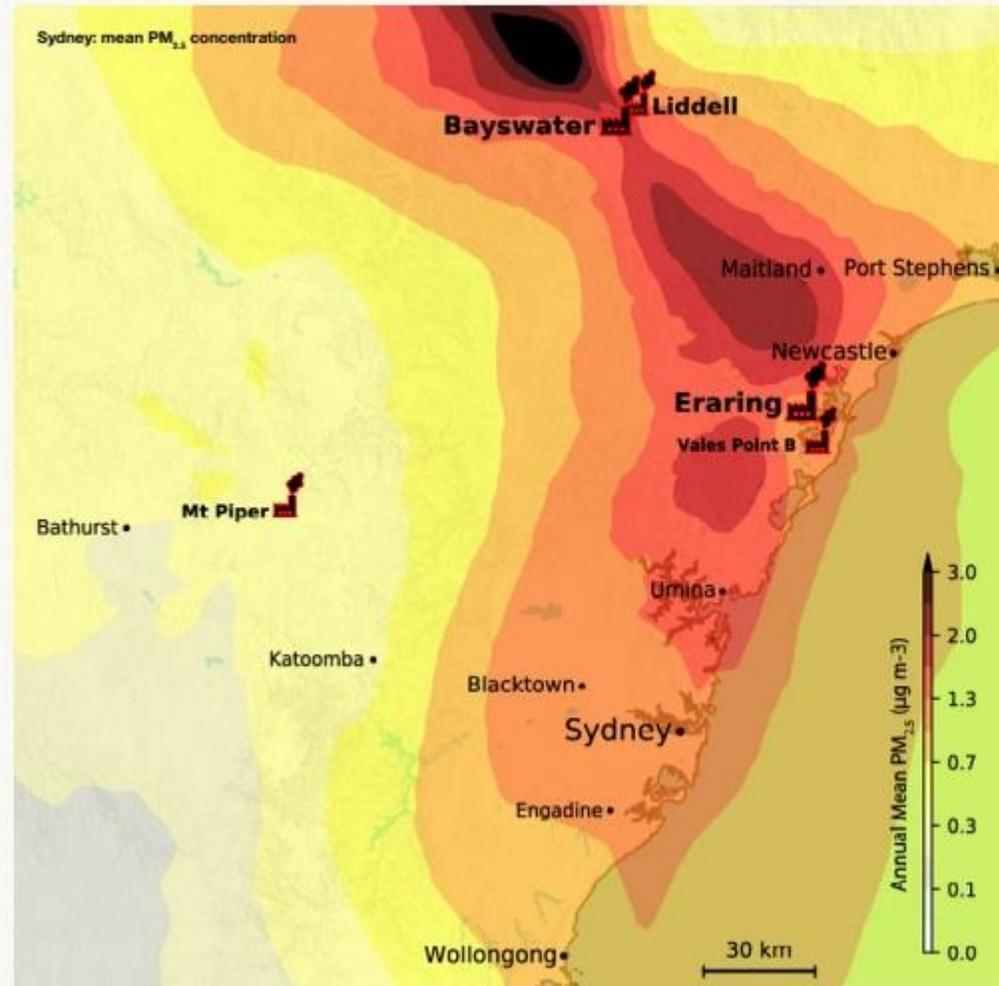
All / Diagnoses / All cancers / Invasive
 Geographical patterns (separate time periods) / Relative ratios



FUTURE SOONER CITIZENS INQUIRY

Greenpeace, Lethal Power

*Pollution Plumes have shown a dispersal
all the way from Newcastle, through
Sydney, to Wollongong*



GREENPEACE

FUTURE SOONER CITIZENS INQUIRY

NSW GOV'T ADAPT WEBSITE LINKS TO WHO WEBSITE

WHO WEBSITE

Heat-related deaths among those over 65 have risen by 70% in two decades. In 2020, 98 million more experienced food insecurity compared to the 1981-2010 average. The WHO conservatively projects 250 000 additional yearly deaths by the 2030s due to climate change impacts on diseases like malaria and coastal flooding.

<https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>

World Health Organization

Health Topics ▾

Countries ▾

Newsroom ▾

Emergencies ▾

Data ▾

Although it is unequivocal that climate change affects human health, it remains challenging to accurately estimate the scale and impact of many climate-sensitive health risks. However, scientific advances progressively allow us to attribute an increase in morbidity and mortality to global warming, and more accurately determine the risks and scale of these health threats.

WHO data indicates 2 billion people lack safe drinking water and 600 million suffer from foodborne illnesses annually, with children under 5 bearing 30% of foodborne fatalities. Climate stressors heighten waterborne and foodborne disease risks. In 2020, 770 million faced hunger, predominantly in Africa and Asia. Climate change affects food availability, quality and diversity, exacerbating food and nutrition crises.

Temperature and precipitation changes enhance the spread of vector-borne diseases. Without preventive actions, deaths from such diseases, currently over 700 000 annually, may rise. Climate change induces both immediate mental health issues, like anxiety and post-traumatic stress, and long-term disorders due to factors like displacement and disrupted social cohesion.

Recent research attributes 37% of heat-related deaths to human-induced climate change. Heat-related deaths among those over 65 have risen by 70% in two decades. In 2020, 98 million more experienced food insecurity compared to the 1981–2010 average. The WHO conservatively projects 250 000 additional yearly deaths by the 2030s due to climate change impacts on diseases like malaria and coastal flooding. However, modelling challenges persist, especially around capturing risks like drought and migration pressures.

The climate crisis threatens to undo the last 50 years of progress in development, global health and poverty reduction, and to further widen existing health inequalities between and within populations. It severely jeopardizes the realization of UHC in various ways, including by compounding the existing burden of disease and by exacerbating existing barriers to accessing health services, often at the times when they are most needed. Over 930 million people – around 12% of the world's population – spend at least 10% of their household budget to pay for health care. With the poorest people largely uninsured, health shocks and stresses already currently push around 100 million people into poverty every year, with the impacts of climate change worsening this trend.

FUTURE SOONER CITIZENS INQUIRY

COAL ASH DAM & COAL ASH DAM INQUIRY

None of this mentions the issues of the waste from the Coal Fired Power Stations in unlined Coal Ash Dams along the Lake Macquarie foreshores.

Nor any issues related to the extraordinary use of Lake Macquarie waters by the Coal Fired Power Stations.

<https://www.epa.nsw.gov.au/your-environment/contaminated-land/pfas-investigation-program/pfas-investigation-sites/lake-macquarie>



FUTURE SOONER CITIZENS INQUIRY WHERE TO FROM HERE

FOLLOWING ON FROM THE COAL ASH DAM INQUIRY

FOUND

'1.11 In its submission, the NSW Government acknowledged that contamination from these sites 'may threaten human health and the environment, limit land use or increase development costs'. 23'

'3.66 The committee agrees with inquiry participants that little research, if any, has been conducted on the impacts and long term consequences in relation to the health of communities residing near coal ash dams. We are disappointed with the response by the NSW EPA and NSW Health to community concerns about a potential link between the circulation of additional metals in the air and waterways, and impacts on health outcomes for the community. This response, in conjunction with the lack of research conducted to date on this matter, demonstrates a complete disregard by the government towards the health of its citizens. (pg. 32)'

RECOMMENDED

That NSW Health immediately undertake an epidemiological assessment of the health of residents near coal ash dams to establish the health impacts of coal ash and publish by 31 December 2022

That the NSW Environment Protection Authority commission a comprehensive and independent assessment of the environmental impacts of coal ash dams to provide a better understanding of the issues and to inform best practice remediation.

Public Works Committee

<https://www.parliament.nsw.gov.au/lcdocs/inquiries/2556/Final%20Report%20-%20Costs%20for%20remediation%20of%20sites%20containing%20coal%20ash%20Repositories%20-%202022%20March%202021.pdf>

-
- 3.67 Given this, the committee recommends that NSW Health immediately undertake an epidemiological assessment of the health of residents near coal ash dams to establish the health impacts of coal ash and publish by 31 December 2022.
-

Recommendation 6

That NSW Health immediately undertake an epidemiological assessment of the health of residents near coal ash dams to establish the health impacts of coal ash and publish by 31 December 2022.

- 3.68 The Committee acknowledges community concerns that the cap and cover method of storing coal ash in unlined dams is resulting in heavy metals and other pollutants escaping from coal ash dams. The committee is concerned by evidence received about the environmental impacts of coal ash dams, in particular, the contamination of Lake Macquarie and its aquatic life.
- 3.69 We note that the contamination of Lake Macquarie has occurred over many years, and that the 'cap and cover' method will not protect Lake Macquarie from the risk of further contamination.
- 3.70 The committee is cognisant of the cost implications of excavating coal ash from unlined dams and replacing them with lined dams. It is impractical to simply excavate coal ash and then redump it into a new dam with higher environmental controls when, as explored in chapter 4, there are other more beneficial uses of the coal ash.
- 3.71 While the committee has found evidence about the level of contamination in Lake Macquarie to be persuasive, we are frustrated by the responses of the NSW EPA to health and environmental concerns voiced by the community. As a result, we are of the view that an independent assessment of the environmental impacts of coal ash pollution is required.
- 3.72 The committee therefore recommends that the NSW EPA commission a comprehensive and independent assessment of the environmental impacts of coal ash dams to provide a better understanding of the issues and to inform best practice remediation.
-

Recommendation 7

That the NSW Environment Protection Authority commission a comprehensive and independent assessment of the environmental impacts of coal ash dams to provide a better understanding of the issues and to inform best practice remediation.

- 3.73 In regards to actual and potential risks for both operational and non-operational power station sites located near Lake Macquarie, Wollongong and the Blue Mountains, the committee is very concerned by the risks posed in Lake Macquarie, namely the risks posed by the Eraring ash dam which led to the closure of the Myuna Bay Sport and Recreation Centre. The committee is dissatisfied by the lack of authority exercised by Dams Safety NSW as the regulatory body responsible for dam structural integrity as well as the proper and efficient management in matters relating to dam safety. As a result, the committee is of the view that this situation could have been handled better by Origin Energy, Dams Safety NSW and the Office of Sport.
-

Contaminated land

Managing contaminated land ▼

Notified and regulated contaminated land ▼

NSW site auditor scheme ▼

Statutory guidelines

Non-statutory guidance documents ▼

Underground petroleum storage systems ▼

test-pdf-upload

PFAS investigation program ▲

NSW PFAS Expert Panel

PFAS investigation process

PFAS investigation program FAQs

Regulation of PFAS firefighting foams ▼

Other contamination issues ▼

Stay up to date

Lake Macquarie

The NSW Government has updated the precautionary advice for the consumption of giant mud crab and blue swimmer crab caught in Lake Macquarie after additional testing in 2020 found levels of cadmium above health screening criteria.

Guidelines for the consumption of giant mud crab and blue swimmer crab

In 2017, the NSW Government conducted a study to understand if it was safe to eat fish and crustacea caught by recreational fishers in Lake Macquarie.

The 2017 sampling results indicated PFAS exposure through the consumption of seafood caught in Lake Macquarie did not pose a risk to fishers or their families. Based on the levels of cadmium detected in crabs, a risk assessment was conducted, which triggered the need for dietary advice at the time.

In late 2020, the EPA and the Department of Primary Industries (DPI) conducted additional sampling, focusing on blue swimmer crab and giant mud crab, the most common crab species that are caught in Lake Macquarie.

The 2020 testing found levels of cadmium above health screening criteria in these crabs, posing a risk for fishers and their families. The precautionary dietary advice has been updated for the consumption of edible crab meat to minimise exposure to cadmium.

Regular consumers of crabs caught in Lake Macquarie should follow this advice about consumption of crab.

Blue swimmer crab

- Children under 6 years of age - up to 3 servings (of 75 grams) per week.
- All other age groups - up to 6 servings (of 150 grams) per week.

Giant mud crab

- Children under 6 years of age - up to 3 servings (of 75 grams) per month.
- All other age groups - up to 6 servings (of 150 grams) per month.

Blue swimmer crab and giant mud crab - where both species are consumed

FUTURE SOONER CITIZENS INQUIRY

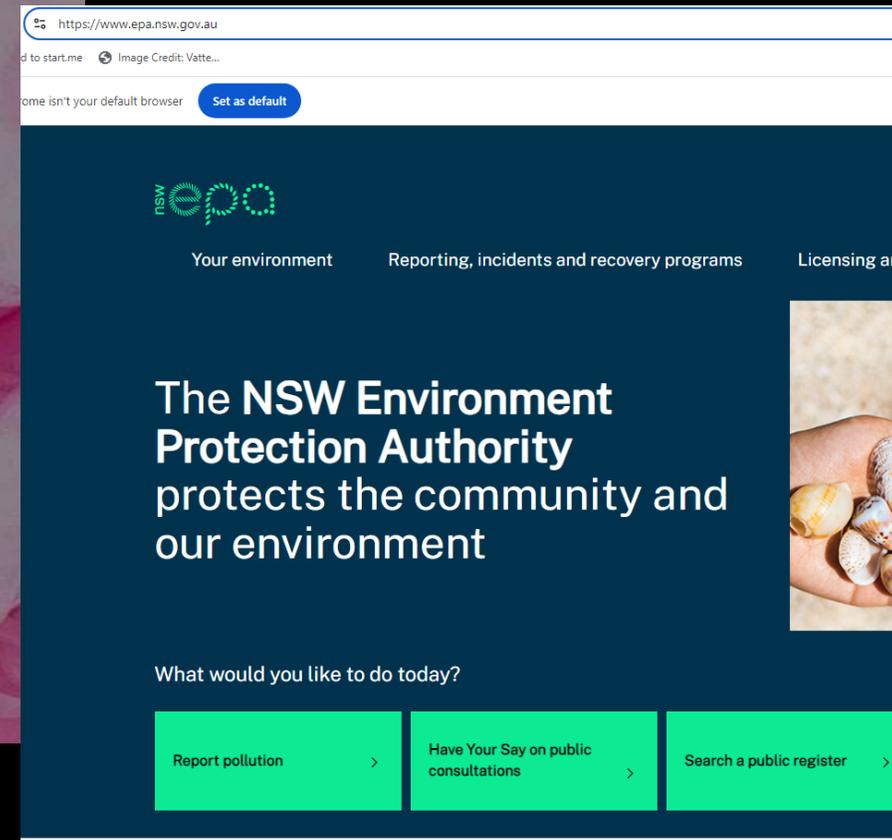
RESPONSIBILITIES

Section 4 of the Protection of the Environment Administration Act 1991 NSW states that the objective of the legislation is the constitution of the Environmental Protection Authority to provide administration towards the protection of the environment as well as undertake tasks related to quality of the environment, audits and reports. The objectives of the Environmental Protection Authority are stated under sections 6(1) and 6(2)11. This includes protection and reduction of risks under s.6(1)(a) & s.6(1)(b) respectively. The authorities objectives also includes the 'precautionary principle, intergenerational equity, conservation of biological diversity and ecological integrity, and the polluter pays principle in under section 6 subsection 2(a) through to 2(d) respectively.

<https://legislation.nsw.gov.au/view/whole/html/inforce/current/act-1991-060#sec.6>

NOx Exemptions

Despite protection and reduction of risk objectives the EPA has continued to provide NOx exemptions for Vales Point



Vales Point Coal Fired Power Station exemption. information regarding their emissions from Environmental Justice Australia (EJA) website...
<https://envirojustice.org.au/.../challenging-vales.../>
Environmental Protection Authority (EPA)
<https://www.epa.nsw.gov.au/.../vales-point-power-station>

FUTURE SOONER CITIZENS INQUIRY



NSW legislation

Part 2 Constitution of the Environment Protection Authority

5 Constitution of Authority

Part 3 Objectives of the Environment Protection Authority

6 Objectives of the Authority

Part 4 General responsibilities etc of the Environment Protection Authority

7 General functions of Authority

8 General powers of Authority

9 Powers of Authority relating to environmental quality

10 State of the environment reports

11 Performance targets for public authorities

12 Directions to public authorities

12A Environmental assessment

Part 5 Management of the Environment Protection Authority

Division 1 The Minister

13 General directions by Minister

13A Exercise of EPA licensing functions by Minister

Division 1A Chief Executive Officer of the Authority

14 Chief Executive Officer of the Authority

14A Chief Executive Officer to manage and control affairs of Authority

Division 2 The Board of the Authority

15 Establishment of Board

16 Functions of Board

17 Environmental Counsel to Board

Division 3 The Chairperson of the Board

6 Objectives of the Authority

(1) The objectives of the Authority are—

- (a) to protect, restore and enhance the quality of the environment in New South Wales, having regard to the need to maintain ecologically sustainable development, and
- (b) to reduce the risks to human health and prevent the degradation of the environment, by means such as the following—

- promoting pollution prevention,
- adopting the principle of reducing to harmless levels the discharge into the air, water or land of substances likely to cause harm to the environment,
- taking action in relation to climate change,
- minimising the creation of waste by the use of appropriate technology,
- regulating the transportation, collection, treatment, storage and disposal of waste,
- encouraging the reduction of the use of materials, encouraging the re-use and recycling of materials and encouraging material recovery,
- adopting minimum environmental standards prescribed by complementary Commonwealth and State legislation and advising the Government to prescribe more stringent standards where appropriate,
- setting mandatory targets for environmental improvement,
- promoting community involvement in decisions about environmental matters,
- ensuring the community has access to relevant information about hazardous substances arising from, or stored, used or sold by, any industry or public authority,
- conducting public education and awareness programs about environmental matters.

(2) For the purposes of subsection (1) (a), ecologically sustainable development requires the effective integration of social, economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs—

- (a) the precautionary principle—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In the application of the precautionary principle, public and private decisions should be guided by—

- (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and

FUTURE SOONER CITIZENS INQUIRY

legislation.nsw.gov.au/view/whole/html/inforce/current/act-1991-060#sec.6

Close Add to start.me Image Credit: Vatte...

Google Chrome isn't your default browser [Set as default](#)



NSW legislation

[Home](#) [About](#) [Contact](#) [Help](#) [Links](#) [Export](#) [Feedback](#)

[In force](#) [Repealed](#) [As made](#) [Bills](#) [Notification](#) [Gazette](#) [Tables](#) [Information](#) [Historical information](#) [Search](#) [My favourites](#)

Part 2 Constitution of the Environment Protection Authority

5 Constitution of Authority

Part 3 Objectives of the Environment Protection Authority

6 Objectives of the Authority

Part 4 General responsibilities etc of the Environment Protection Authority

7 General functions of Authority

8 General powers of Authority

9 Powers of Authority relating to environmental quality

10 State of the environment reports

11 Performance targets for public authorities

12 Directions to public authorities

12A Environmental assessment

Part 5 Management of the Environment Protection Authority

Division 1 The Minister

13 General directions by Minister

13A Exercise of EPA licensing functions by Minister

Division 1A Chief Executive Officer of the Authority

14 Chief Executive Officer of the Authority

14A Chief Executive Officer to manage and control affairs of Authority

Division 2 The Board of the Authority

15 Establishment of Board

16 Functions of Board

17 Environmental Counsel to Board

Division 3 The Chairperson of the Board

- ensuring the community has access to relevant information about hazardous substances arising from, or stored, used or sold by, any industry or public authority,
- conducting public education and awareness programs about environmental matters.

(2) For the purposes of subsection (1) (a), ecologically sustainable development requires the effective integration of social, economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs—

(a) the precautionary principle—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In the application of the precautionary principle, public and private decisions should be guided by—

- (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and
- (ii) an assessment of the risk-weighted consequences of various options,

(b) inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,

(c) conservation of biological diversity and ecological integrity—namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,

(d) improved valuation, pricing and incentive mechanisms—namely, that environmental factors should be included in the valuation of assets and services, such as—

- (i) polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,
- (ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,
- (iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

Part 4 General responsibilities etc of the Environment Protection Authority

7 General functions of Authority

- The Authority has such environment protection and other functions as are conferred or imposed on it by or under the environment protection legislation or any other legislation.
- The Authority has general responsibility for the following—

FUTURE SOONER CITIZENS INQUIRY

HUMAN RIGHTS

In 1948 the United Nations passed the Universal Declaration of Human Rights²⁶. It included the right to 'life, liberty and security'.

In 1972 there was the Stockholm Declaration on the Human Environment where the first principal was 'the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being'.

In 2022 the United Nations declared that a healthy environment is a human right. Specifically, a 'clean, healthy, stable environment'²⁷.



'Ilan's point is right...the coal power stations do produce emissions...obviously...and they actually impact all of Sydney...including the local community...the advice we get from Health is that the air quality, it doesn't have a material difference, in terms of air quality outcome...whether your relatively proximate, or in other parts of greater Sydney, because of the way the emissions are dispersed...because of the height of stacks. But they obviously do have impacts...and we license those...I'm not a doctor like Ian but I can rely on my colleagues in the Ministry of Health for that kind of perspective...

[CEO of Environmental Protection Authority (EPA) @
Future Sooner Meeting]

WERE TO FROM HERE

NEGLIGENCE – TORTS?
INVERSE COMDEMATION?
ENVIRONMENTAL PERSONHOOD?

EPA v Bushfire Survivors

It is noted that the Bushfire Survivors for Climate Action undertook legal proceedings towards civil enforcement action with the EPA. It was found that the EPA failed in their duty 'to develop environmental quality objectives, guidelines and policies to ensure environmental protection from climate change and ordered the statutory body to develop such instruments moving forward.'

This was said to relate to s.9(2) of the Environment Administration Act 1991 (NSW) (POEA Act).

*While this journey provides hard discussions towards the true impacts of coal fired power stations it also seeks positive ways forward for the health and well-being of the community.
Kind loving thoughts...*

FUTURE SOONER CITIZENS INQUIRY



Despite health impacts and community opposition, an agreement was reached between the NSW government and the owners of the Eraring coal fired power station to continue operations which could mean government compensation of \$225M annually...

- * <https://www.hcec.org.au/eraring-extension>
- * <https://www.smh.com.au/.../revealed-sharpe-signed-off-on...>
- * <https://www.environment.nsw.gov.au/.../nsw-government...>
- * <https://www.energy.nsw.gov.au/.../NSW-202405-Public...>
- * [https://www.energy.nsw.gov.au/.../agreement-eraring....](https://www.energy.nsw.gov.au/.../agreement-eraring...)